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Under the auspices of the New York Board of Education and funded through the Office of Economic Opportunity, 20 Edison Responsive Environment (ERE) machines ("Talking Typewriters") were acquired, and a research and demonstration project for disadvantaged students of a major metropolitan area was developed. A total of 238 primary and secondary school children attended the REP center daily for a nine-month period, and a group of functionally illiterate adults completed an evening program on a voluntary basis. Multivariate analyses of pre- and post-program achievement measures indicated striking but inconsistent results. Significant differences on an alphabet recognition test for pre-school and kindergarten children and three verbal ability tests for first graders favored REP participants in comparison with control groups. However, no significant differences on the three verbal ability tests were obtained at the second-grade level. Secondary school participants evidenced greater reading comprehension gains than control students with no differences discernible on a word knowledge measure. The demonstrated efficacy of the program on verbal ability growth and the motivational improvements observed were considered validation of responsive environment concepts. (SS)

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RESPONSIVE ENVIRONMENT PROGRAM

BROOKLYN, N. Y.

Report of the first full year of operation

September 1968

Prepared by:
Dr. Benjamin L. Israel, Director

For:
Dr. Bernard E. Donovan
Superintendent of Schools
City of New York

The Talking Typewriter

Sponsor:
Board of Education
City of New York

Funded by:
Community Action Program
Office of Economic Opportunity

EM007129

The Research and Demonstration Project reported on herein was made possible by Contracts OEO-1388 and B-89-4402

RESULTS IN BRIEF

The Responsive Environment Program of the Board of Education of the City of New York is reported to be the largest single installation of industrial technology for school age children in the United States. At the conclusion of the first full year of operation REP submits the following brief statements of results.

STATISTICAL RESULTS

- The pre-kindergarten children in the program scored 1.54 times as high as control group first-grade children in the alphabet recognition section of the Metropolitan Reading Readiness Test.
- Kindergarten children in the program scored 1.84 times as high as control group first-graders in the alphabet recognition section of the Metropolitan Reading Readiness Test. Research indicates that this test offers high prediction of future reading success.
- First-grade children in the program all scored near or above 2.0 grade level which is equal to the median performance of regular New York City students who are finishing second grade.
- Eighth-grade (junior high school) students severely retarded in reading, showed a gain of 1.4 years in reading compared to .16 for their control counterparts during the nine months of the program.
- Tenth-grade students severely retarded in reading and general language ability scored 1.74 times higher than the control group on the Metropolitan Achievement Test in reading comprehension.

GENERAL RESULTS

- Inner-city militancy against the school "Establishment" was mobilized into an effective local community of support and high participation.
- Sophisticated technology was used as the instrument to employ into the education process large numbers of para-professional adults from the local district.
- The para-professionals exhibited high morale, dedication and competence in a team working with regular teachers.
- The parents expressed intimate knowledge of the program, confidence in it, satisfaction with their children's performance and achievement, and conviction that REP teachers were enriching the children's education.
- The professional community of teachers and supervisors from the local district responded affirmatively to the impact of advanced technology despite early predictions of teacher fears and antagonisms.
- Participating teachers agreed that the REP Center helped the children academically, socially and emotionally. Greater interest in outside reading and other school subjects was also developed.

The impact of this large educational technology program, organized as a total learning system in an inner-city area, has had a positive effect on virtually every segment of the community.

BOARD OF EDUCATION
OF THE CITY OF NEW YORK
110 LIVINGSTON STREET
BROOKLYN, N.Y. 11201

BERNARD E. DONOVAN
SUPERINTENDENT OF SCHOOLS

September 16, 1968

Mr. Theodore M. Berry, Director
Community Action Program
Office of Economic Opportunity
1200 19th Street N.W.
Washington, D.C. 20506

Dear Mr. Berry:

I am pleased to submit this final report of the Responsive Environment Program, Brooklyn, New York. This is the report dealing with the first full year of operation of the program (September 1967 through June 1968) and is in fulfillment of Contract # B89-4402.

This research demonstration program report focuses on the impact of the E.R.E. process ("The Talking Typewriter") on approximately 650 students ranging from pre-kindergarteners to functionally illiterate adults.

Much of the statistical data reported is concerned primarily with reading growths and gains of experimental classes and groups compared with the growths and gains of control groups during the 1967/68 school year. These data were gathered through systematic pre-testing and post-testing. In addition, in-depth interviews and attitude surveys were conducted with the Center population and representative members of the community at large. Interviews were also held with participating classroom teachers, paraprofessionals employed in the program and members of the professional staff in the program.

I am most grateful to all those who cooperated with us on all governmental levels; especially Mr. Greene, Mr. Frank, Dr. Muntone, and Messrs. Eisenberg and Goldstein of your staff who were extremely generous of their time and energies in helping us to facilitate and implement many administrative aspects of Center operation.

Mr. Theodore M. Berry -2- September 16, 1968

I am certain that this report will be useful to many city, state and federal agencies engaged in educational efforts in urban school systems, as well as those involved with the education of functionally illiterate adults, teenagers and school drop-outs. We are planning to continue with our efforts along these lines and we hope to make available to all those who are interested the results of our efforts in New York City.

Sincerely yours,

Bernard E. Donovan

Bernard E. Donovan
Superintendent of Schools
Board of Education
Of The City Of New York

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ACKNOWLEDGMENTS

While it is not possible to extend recognition to everyone involved with this project, several individuals should be singled out; those whose commitments of time and energy were outstanding. There are many others, though unnamed, whose efforts were vital to the total impact and effect of the Responsive Environment Program on our schools, community, and the City of New York.

From the outset, Superintendent Bernard E. Donovan staunchly supported the Responsive Environment Program. Assistant Superintendent Jacob B. Zack, Dr. Donovan's liaison officer in charge of special projects, was our day-to-day contact with the Office of the Superintendent of Schools. Mr. Zack's confidence in our efforts and his understanding, aid and encouragement made it possible for us to concentrate our efforts on the program thus minimizing energy needed to unravel bureaucratic red tape. This support manifested itself in all areas of the Responsive Environment Program; i.e., from the expediting of payroll deliveries to immediate responses regarding policy questions from the Office of the Superintendent of Schools.

If the Responsive Environment Program has contributed to educational progress in any way, a very large part of the credit must go to the Project Associate in charge of Program Development and Curriculum Coordination, Mrs. Zelda P. Litwin. Her role in training writers, working with the teachers and schools, and developing programs, made it possible for the Director to attend to the many critical and sensitive areas of administration and community involvement. In some instances the very continuation of the program hinged upon prompt recognition of acute problems and situations and their resolution.

We also express our gratitude and appreciation to the principals and teachers of the participating schools whose eagerness to share in this new, vital, exciting educational experience helped us to overcome some of the difficulties inherent in the initial phase of any program.

Mrs. Lynne Kennard and Miss Judy Hollander are our two licensed teachers assigned as laboratory supervisors. Their initiative and imagination, freed from the traditional constraints of the urban school setting have resulted in the development of methods, patterns and procedures in the Responsive Environment laboratory which have been used as models at other ERE Centers throughout the country.

No visitor to our Center has failed to note all that our kindergarten and Head Start teacher, Miss Amanda Kemp, has been able to accomplish with the youngsters in her charge. All of us at the Center have noted changes in the children from week to week. The parents, the community and the Center staff take particular pride in demonstrating what can be done with our very young children under the guidance and direction of a creative and dynamic teacher.

Mrs. Ida B. Sternlieb, formerly a junior high school principal in New York City, played a major role in the planning and development of related classroom activities for our secondary school students. Her efforts in eliciting expressions of creativity and originality in writing, thinking and speaking can best be evaluated by an examination of the secondary school student's magazine, "Talking Through The Talking Typewriter" which accompanies this report. All of us are indeed grateful to Mrs. Sternlieb in many ways for many things.

Not enough can be said about our Educational Laboratory Assistants and office staff. All of our para-professionals and administrative employees have deep personal feelings of involvement with our program. Their calm demeanor, air of professional competence and dedication to the children they served can be sensed immediately upon entering the Responsive Environment Program Center. This learning climate, this teaching atmosphere was quickly transmitted to or sensed by our students. It resulted, I am sure, in many cases, in changes in them; positive changes in attitude toward self, school and society.

Most heartening to all of us at the Responsive Environment Program Center was the complete support of the community in general and the Parents Educational Advisory Council of East New York in particular. Whenever support and reinforcement were needed we knew we could count upon them unfailingly.

Our association with staff members of the Research and Demonstration Division--Community Action Program--of the Office of Economic Opportunity added much to the smoothness of the functioning of the Responsive Environment Center. At meetings, both in Washington and New York, at site visits, and through phone conversations, both day and night, assistance was given unstintingly. My very special appreciation, therefore, to Mr. Gerson Greene, and members of his staff, Mr. Rudy Frank, Mr. Pablo Eisenberg, and Mr. Stanley Goldstein, and Dr. John Muntone, former Director, CAP/Education Division, all of OEO.

The sum of the Responsive Environment Program Center is greater than the total of its parts. Our efforts as a team have been devoted to demonstrating the feasibility of one of the innovative approaches to a very serious problem. The spirit of a staff can make the difference between success and failure. Any successes we have had are due in a large part to this spirit. I have been proud to serve as a member of this team.

Benjamin L. Israel, Ph.D.
Director,
Responsive Environment Program

INTRODUCTION AND SUMMARY

This Report is an account of the first full year of operation of the Responsive Environment Program sponsored by the Board of Education of the City of New York and funded by the Office of Economic Opportunity. The program demonstrated the use of a computer in a responsive environment setting to teach initial and remedial reading, particularly to children in disadvantaged areas.

These introductory paragraphs detail the sponsorship and funding of the project and its brief history. Thus the Report itself focuses directly upon and analyzes the significance of what happened during the twelve-month period it covers (September 1, 1967 through August 31, 1968).

The Responsive Environment Program is a complex undertaking with highly specialized, as well as technologically advanced, components. In order to give a thorough and a reasonably sequential account, it is useful to separate the great mass of details and data into two parts, both of which, together with a Part III, comprise the Report.

In Part I are chapters on the administration and personnel of the project; their recruitment, training and functions; the Program's relationships with several specific communities (such as the participating schools and teachers, the East New York locale and its residents, the professional realm, and the mass media).

A good deal of Part I bears in various ways on the day-to-day operation of REP. Part II includes the technical reporting on REP's first full year of operation, as well as chapters reviewing the literature on the research design, tests and analysis, and other data pertinent to the research and demonstration nature of REP.

Part III begins with a chapter of conclusions and recommendations drawn from the data of Part II. Here also are the extrapolations and predictions, based on REP's operational experiences, and their analysis. This is followed by several appendices with program materials, instruments, and supplementary tables and charts.

In 1966, the Federal Office of Economic Opportunity offered New York City the use of twenty (20) Edison Responsive Environment machines, known colloquially as Talking Typewriters. The ERE machine is a responsive audio-visual, computer-based teaching device. The Community Action Program of the Office of Economic Opportunity had agreed to purchase the machines from the Responsive Environments Corporation. The machines were originally destined for the public school system of Freeport, Long Island. Freeport had previously worked with earlier versions of the same equipment, and, in OEO/CAP's perspective, it was to become the major unit of a three-cornered research and demonstration project involving ten ERE machines in Chicago, and a test of the implicit concepts without automated machines in Greeley, Colorado.

In January 1967, a few months after the Board of Education of New York City had negotiated a contract with OEO for the establishment of the nation's largest single installation of ERE Talking Typewriters, the Responsive Environment Program was inaugurated at 2560 Linden Boulevard in the East New York section of Brooklyn. OEO Contract #1388 provided for a project designed "for the teaching of reading and related skills to preschoolers, elementary school pupils (initial reading), secondary school pupils and functionally illiterate adults (remedial) through the use of the Edison Responsive Environment Process (Talking Typewriter)."

The original funding covered the period from July 26, 1966 to August 31, 1967 but demonstration operations spanned only the five months from February to July, 1967. Several time extensions carried REP through February of 1968. A new contract, effective March 1, 1968 extended the Program to August 31, 1968.

We have seen growth and change in human behavior and attitude, as well as achievement. Among the changes which the statistically oriented as well as the cost-effectiveness minded will find of interest are the fofowing: After only one full school year, the reading growth of the high school experimental group nearly doubled that of the control group.

Specifically, the experimental group gained approximately nine months in mean reading growth for nine months exposure (13+ hours of exposure per month to the ERE process), while the control group gained but five months in the same period. Moreover, the dropout rate among the control population was nearly double that of the rate of the experimental group. Specifically, the dropout rate of the control group was 56%, while the rate of the experimental group was only 30%.

Despite the fact that the attitudes of the experimental group were more negative than those of the control group, the experimental group achieved greater growth gains than did their control counterparts.

Experimental kindergarten and pre-kindergarten groups achieved higher reading readiness scores at the end of the school year than did the first grade control groups.

In the participating schools, there seemed to be a peripheral lift in reading among other classes at the same grade level. Is this the "institutionalization of the Hawthorne effect"?

There has been virtually unanimous support for the demonstration project at the Responsive Environment Program Center despite general community agitation and unrest involving schools and community services in the East New York area.

PART I

WHERE THE ACTION IS

CHAPTER 1

RESPONSIVE ENVIRONMENT PROGRAM--SETTING AND PROCESS

The Responsive Environment Center is on the second floor of a commercial building whose first floor is occupied by a retail carpet company. The non-school location was chosen intentionally to create an atmosphere which was new, different and exciting. The idea was to avoid a setting which would bring to mind previous academic failures and shortcomings. For example, all areas and rooms are carpeted wall to wall.

The second floor area consists of approximately 10,000 square feet, half of which is occupied by the laboratory. The rest contains a pre-kindergarten room, a conference room, program rooms (encoding), and offices for the clerical staff. One complete section of this latter area consists of two related classrooms. One is furnished for use by primary grade children and the other has materials and furniture for secondary school students, teenagers and adults.

Around the perimeter of the laboratory area there are 18 soundproof Talking Typewriter booths (Appendix A-1). These are equipped with one-way glass and monitored by educational learning assistants (para-professionals). Laboratory operation is supervised by two licensed teachers. The Talking Typewriter consists of a computer about the size of a small, upright piano with a typewriter keyboard. It has a speaker and a frame above the typewriter for printed matter and a viewing screen for slides and transparencies.

Kindergarten Room

This is a large carpeted, modern room that resembles a conventional kindergarten. It is equipped with audio-visual devices such as a phonograph, an over-head projector, and a slide projector.

The Primary Classroom

In addition to the devices listed above, there is a closed telephone circuit available to the children to further stimulate verbalization. The room is large, equipped with tables and chairs and is staffed by four para-professionals and the classroom teacher from the public school. The public school classroom teacher remains in the room with her class. This room services children in grades 1 and 2.

The Secondary and Adult Classroom

Secondary school students receive reinforcement instruction in this room before or after ERE typewriter exposure. It is a large room equipped with desk chairs, lockers for clothing, a typewriter, a library of high interest-low difficulty books and a variety of scholastic magazines. Literature on vocational opportunities is available.

The movable desk chairs are used for small reading groups, each supervised by a para-professional and the high school teacher. In the evening, adults use this room in similar fashion but are guided by one of the laboratory supervisors.

The selection of programs for each student is based upon pupil progress records that are kept at the Center. Each student's progress is charted by the booth assistants in his or her monthly folder. This folder contains information of three kinds:

1. The program used and date of exposure
2. Growth in reading
3. Attitudes of student

The first category contains information about the type and level of the program. A printout, which is a copy of the student's work that day is also retained in his folder. The time spent in the booth is noted. The second section contains comments by booth assistants about the progress of the student. This is recorded daily after he leaves the booth. The third area deals with the behavior and attitude of the student. Also recorded are references to attention span, work habits and physical disabilities. A copy of the student evaluation form is Appendix A-2.

Another determinant of program selection is the student's test record. This record includes results of diagnostic tests (such as the Chall Reading Test and the Dolch Reading Test) and other standard reading including the Metropolitan Achievement and Peabody Picture Vocabulary.

At weekly meetings of laboratory supervisors, booth assistants, educational technicians and classroom teachers, decisions are made about the following week's programs for each student. Lists of these schedules are kept by the laboratory supervisor. This schedule is the basis for assigning programs during the ensuing week.

Throughout the school day, classes are scheduled to visit the Center at fixed times so as to maximize the use of the two major facilities--the Talking Typewriters and the related classrooms.

In addition, the Responsive Environment Program is used as an after-school Center to which children and adults come by appointment for remedial reading assistance and instruction. Classes using the Center during the school day are scheduled five days a week. Students attending the afternoon Center attend two or three days weekly. Adults attending the evening Center may choose to come as few as two and as often as four times weekly.

Program Development

During the first five months of operation, major emphasis had been placed upon the development and preparation of materials for pre-kindergarten, kindergarten and first-grade pupils. Very little had been accomplished in terms of program development specifically designed to meet the needs of the secondary school and adult populations during this period.

By June 1967 enough material had been prepared for an entire school year on the primary grade levels. Therefore, during the 1967-68 school year the major emphasis was placed upon the development of materials for retarded readers in the secondary schools as well as program material for the functionally illiterate adult population.

As a direct result of this emphasis, some of the most striking individual pupil gains during this operational year were among the secondary school groups. This is all the more remarkable since the secondary school population included students who were retarded in reading as much as eight or nine years when matched with standardized norms and grade equivalents.

In preparing programs for the secondary and adult groups, the suggestions of our university consultants were followed closely. A series of diagnostic tests was administered to each student. The results of these tests were then evaluated at a meeting of the project supervisors, participating teachers, university consultants and writers. Evaluation of the students' phonic needs, as measured by the Roswell-Chall Reading Diagnostic Test, indicated that a good starting point for programs would be the teaching of short vowels. The Dolch Word Test revealed a lack of knowledge in this area and programs were needed which could teach sight words. An analysis of interest inventories suggested possible avenues for program development based on the students' interests and aspirations.

The writing staff was composed of part-time personnel who were trained and directed by the Project Associate for Program Development. The writers included a number of participating teachers, thereby assuring that programs were being written by people who knew the students, their problems and their interests. Other writers were specialists in remedial reading or in programed reading instruction. Regular meetings were scheduled for the writers so that work could be evaluated and discussed as it progressed. New ideas, program techniques, and comments were shared during these sessions. A consulting specialist in programed instruction, Mr. Joseph McSweeney, was retained to advise on programing methods. His suggested techniques were utilized in some of REP's most effective phonic programs.

Programs designed for motivation and application were simultaneously developed. As a result of direct observation of students in the laboratory, it was found that non-readers were able to enjoy and benefit from working with a high interest story as easily as the brighter students. Therefore, additional programs were added to those in the driver's manual series. Programs were also developed around different sports, such as scuba diving. High interest-low difficulty stories were constantly utilized to teach phonics, sight words and word attack skills.

It was found that some students needed more advanced word attack skills. A series of programs designed to teach context clues was developed just for them. Several plays were also programed for these students. Each play had two characters in it. The student rehearsed his part while alone in the booth. Then when he was ready, he performed the play in the classroom before an audience of classmates. In addition to reading motivation, this technique was used as yet another way to teach new vocabulary words. We have continued with the development of many new programs designed to teach comprehension skills.

Throughout the year efforts were consistently made to encourage student participation in program development. Three boys in the high school class wrote a story about "The Party." This served as our first open-end program. Their story was put on a program card without an ending. The student using the card had to conclude the story in his own way. This open-end technique was then used with stories written by staff writers. It was an effective aid not only in motivating reading and providing practice in reading, it also provided opportunities for the students to express themselves creatively.

Another aim of the open-end program is to motivate interest in a book or story. An ERE program may discuss specific parts of a story to stimulate reading of the entire story (as with the Springboard materials). It may also bring the student to the climax of a story and then direct him to a particular page in a specific book to learn how the story ends.

In the development of new programs certain concepts were paramount:

1. Utilization of the unique features of the typewriter.
    a. command code (elicits and replays student's vocal response)
    b. variations in slides and voice to provide interest
    c. multi-sensory approach and reinforcement
2. Accommodating programs to suit the variety of work habits of students.
    a. includes logical divisions within a long program so that a slow student may continue with the program the following day without losing interest and continuity.
    b. includes suggestions for follow-up work for shorter programs
    c. includes suggestions for booth assistants if a student seeks help
3. Coordinating laboratory programs with classroom lessons.
    a. provide follow-up material to be used in related classroom
    b. utilization of Sullivan workbooks
    c. specific directions on cards for suggested reading
4. Consideration of timing in the program.
    a. during the short intervals that it takes the machine from line to line--the student should be directed to read or think about something
    b. placing codes such as keyvoice off, pointer hold or projector forward during the time that a student is reading or answering orally
    c. using the space bar as a means of allowing the student to control the timing mechanism

Each program was carefully reviewed by the Project Associate for Program Development before it was put into production. Systematic regular observations in the laboratory and in the classroom by the project associate, laboratory supervisors and teachers, supplemented by the comments and observations of the non-pedagogic staff (para-professionals) aided program evaluation, revision, and development. In June 1968, a formal evaluation of selected programs was undertaken. Sample programs in a specific series or of a particular type were chosen for evaluation. The form used is in Appendix C39-40. Each program was reviewed by at least two evaluators. These were either university consultants, participating teachers, writers or project supervisors.

Many new programs were also developed for additional vocabulary lessons and supplementary reading on the elementary level. Reading readiness programs had to be developed because of the needs of some of the students. It was found that they were not retaining and that they required additional training in memory span. Program cards were developed to train for this specific skill.

In-House Creative Efforts

For related classroom and reinforcement activities a series of high interest games was suggested by the university consultants. These were cooperatively developed by participating teachers, pedagogic staff and related classroom para-professionals under the direction of the Project Associate for Curriculum Coordination.

The activities were designed to reinforce certain phases of skill development essential for effective reading as well as concept development with kindergarten and first-grade pupils.

Since prediction of later success in reading for young children is very closely correlated with knowledge of letters and sounds, persistence and attention span, many of the classroom activities focused on one or more of these areas.

REP also developed its own method of making transparencies (8 x 11) as well as its own techniques for making and photographing 2 x 2 slides. This made it possible to concentrate on the vocabulary patterns and forms to which the pupil had been exposed--on the typewriter as well as in the school and neighborhood.

The secondary students' magazine, "Talking Through the Talking Typewriter," represents one aspect of pupil participation. Programs suggested by pupils, their photography, and their art work have often been found suitable for ERE presentation and adoption. There are several dozen programs in which such efforts play a significant part.

At the final session of each class in June, each student was awarded an engraved diploma which attested to his participation in the Demonstration Program during the 1967-68 school year. For many of our pupils, it represented the first such award (Appendix C-1).

The Related Classroom

The related classroom is an integral part of the ERE process. The activities in this area represent one-half of the total time the student spends at the REP Center. The personal contact and small group relationship (i.e., one para-professional to 3-4 pupils) has an effect which is difficult to define. These add immeasurably to the total growth and development of the student.

The related classroom activities were designed to reinforce the work begun with the typewriter as well as to emphasize the development of all the language skills required for effective oral and written communication.

The room environment was set up to encourage the development of all aspects of experiential learning, as set forth by such authorities as Bruner, Montessori and Piaget.

The related classroom activities are conducted by para-professionals. The participating classroom teacher and the Responsive Environment Program Center supervisor are also in the room guiding, supervising and evaluating.

One para-professional may be working with a group engaged in manipulation of plastic or sandpaper letters, thus giving kinesthetic reinforcement to the other senses stimulated by the typewriter. Some children may be occupied writing the words which they had previously typed on chalkboard-topped tables. Other groups may be following the REP language and concept development program.

Five categories of concept development are stressed:

1. Self concept and body image.
2. Time, space and number concepts.
3. Sensory concepts and feelings.
4. Group concepts.
5. Language-related concepts.

Basal readers frequently used in the children's classrooms were scanned for lessons, stories and situations which could serve to reinforce understanding of these concepts.

The classroom teacher was alerted to these conceptual reinforcement activities for possible carry-over to the home classroom. The teacher was also a member of the planning team and assisted in scheduling the weekly activities of the children at the typewriter and in the related classroom.

CHAPTER 2

CLIENTELE: PRE-KINDERGARTEN TO ADULT

The East New York section of Brooklyn, in which the Responsive Environment Program Center is located, adjoins the Bedford Stuyvesant, Brownsville, and the Canarsie sections. The ethnic population breakdown of this area is approximately 40% black and 40% Puerto Rican; the balance is classified as other than black or Puerto Rican.

The pupil population (approximately 40,000) of the schools in this area reflects the same ethnic proportions.

The logistics of the existing situation demanded the use of schools which were not more than a ten-minute bus ride from the Center. This allowed for a one-hour interval away from the home school; approximately twenty minutes for Talking Typewriter exposure, twenty minutes for related classroom reinforcement activities and twenty minutes in "slippage" -- travel time, time for the donning of clothing, etc.

The primary grade children (experimental groups attending the Center) consisted of three first-grade classes and two second-grade classes. In addition, the children attending REP's on-site A.M. kindergarten class as well as the on-site P.M. pre-kindergarten class (Head Start) were also part of the experimental groups.

The secondary school experimental group consisted of one class of seventh and eighth grade pupils (J.H.S.) and one class of tenth grade pupils (H.S.).

The groups noted above involved a total of 238 students attending the REP Center daily from 8:45 A.M. to 3:00 P.M.

With the close of the regular school session, the Center facilities were made available to pupils in need of remediation, and students referred by remedial reading teachers and guidance counselors. Nearby public and parochial schools, the Neighborhood Youth Corps, the Juvenile Courts and other social and welfare agencies throughout the city also referred clients to the Center. In addition, even though funds for evening Center operation were curtailed on March 1, 1968, fifteen functionally illiterate adults continued to use REP's services during late afternoon hours. The After School Study Center population totaled 150 school-age and out-of-school teenage pupils as well as fifteen adults.

When it was found that a 45-minute time slot was available between 12:30 P.M. and 1:15 P.M. daily, it was put to use by offering the services of the Center to pupils of a Cerebral Palsy Center located nearby. The effects of the Talking Typewriter exposure upon cerebral palsy pupils are described in letters from the teachers of these pupils (Appendix A3-5).

During July and August of 1968, the Responsive Environment Program's facilities were devoted to use by first-grade pupils attending remedial reading instruction classes at nearby summer schools. One hundred twenty of these first-grade pupils attended the Center daily. In addition, between the hours of 12:00 P.M. and 2:00 P.M., two pre-kindergarten Head Start classes were brought to REP for initial reading and enrichment experiences. Between 2:00 P.M. and 3:30 P.M. the Center was available to any and all pupils in need of remedial instruction. During the course of the operating year, 608 students ranging from pre-kindergarten to functionally illiterate adults, including handicapped persons, benefitted from exposure to the ERE process at the Responsive Environment Program Center in Brooklyn.

In December 1967, the orientation of the kindergarten youngsters in preparation for their use of the typewriters was begun. Miss Kemp, their regular teacher, used a tape recorder to familiarize the children with its use. Three days later the kindergarten class was brought to the lab. After a discussion of the similarities between a tape recorder (the familiar) and the Talking Typewriter (the unfamiliar) the children were invited, two at a time, to try the Talking Typewriter.

The following week the children were scheduled individually for fifteen-minute sessions. They were observed by the laboratory supervisor, in cooperation with a psychiatrist, Dr. Fabian, for signs of nervousness (scratching, etc.), random or methodical selection of keys, number of strokes, etc. After this initial individual exposure, the child was taken into another room and "debriefed." This consisted of a taped interview which brought about, in most cases, further discussions on the part of the child. The children's remarks were not only pertinent to the typewriter but to home life, fears and beliefs (both real and imagined).

The tapes were analyzed by Dr. Fabian who worked directly with the children. The same procedure was followed after the third exposure and the children showed even better understanding of the typewriters.

The first few exposures were exploratory. The child was free to type anything he desired. The booth assistant remained outside of the booth with the door ajar. If the child requested that she remain in the booth, she would do so. On the fourth exposure, the booth assistant went into the booth with the child and asked that the child find certain keys. This informal alphabet test gave further insight into the child's readiness to go on to programed material. This was done on a completely individualized basis according to the child's physical, emotional, and mental development.

The majority of the children had a fairly good knowledge of the alphabet. Those who did not were given basic alphabet recognition programs. A few were put on the expandable keyboard programs.

Although the kindergarteners were given programs from the Bank Street Reading series, they were never asked to read their typeouts. If they wished to do so they could (and usually did), but the atmosphere which prevailed in relation to the kindergarten and pre-kindergarten was a non-directive one.

Each male high school student was interviewed by the Director of the Responsive Environment Program Center. This interview dealt with primary interest and aspiration levels. One of the most important discoveries was that among the male students the desire to drive a car, to handle a vehicle, was of paramount interest and importance. This is typical of male teenagers whose concept of virility, "machismo" and masculinity is closely related, on a psychological basis, to the control of a vehicle. Subsequent to this interview, the Director placed the following words on the board in the related classroom: vehicle, intersection, pedestrian and crosswalk. None of the students were able to read these words without great difficulty. The male pupils were then informed that it would be impossible for them to drive a car legally in New York State without knowing these words. An application for a driver's license was then presented to them. This, too, presented certain difficulties in terms of vocabulary and understanding which would also preclude any of the respondents from legally driving a car in New York State. It was then pointed out to them that the material which would enable them to read the New York State Driver's Manual, as well as to complete the application for a driver's license was programed and that after a series of lessons on the ERE typewriter they might be capable of handling both matters. This proved to be a prime motivation for many of the students to participate and remain with the program.

Mrs. Litwin worked with the high school girls in a similar manner. It was found that their interest related to beauty culture, secretarial work, and hospital service. In New York, beauticians need to be licensed by the State Department of Education. Knowledge of the girls interests and needs enabled REP to develop specific programs designed to further their aspirations.

The new programs for both males and females included specialized vocabulary lists, and the use of materials prepared by the Career and Guidance Program of the Board of Education of the City of New York, their Food Trades, and Hospital Management curricula.

Provision for individual instruction and integration with regular school activities was accomplished through the use of materials such as SCOPE and other high interest secondary school magazines. These provided the youngsters with materials and topics which could be discussed in the classroom upon their return to school. The structure of each lesson was made up of two components: a highly motivational context and a reading skill objective.

Some of the elements of Contingency Management, which was incorporated as an REP technique, were basic to many programed lesson developments. In essence this is a concept related to reinforcement value of a highly motivating type of teaching and learning. Where there is high interest and motivation, learning will probably be accepted more readily than when the material being taught does not relate to a felt need or aspiration.

A rather interesting observation was made at REP. An elementary text book which had been programed was included in the learning pattern for that day. Under ordinary circumstances a pupil of high school age would never be seen with such a book since it is on the elementary level and therefore embarrassing. As a result of exposure to the material on the Talking Typewriter he was able to read all of the words in this book and was able to understand the story completely. When questioned by the Director at the conclusion of his ERE experience concerning his reaction to the lesson, the youngster looked around and said, "No one saw me reading this baby book."

Ordinarily a student can pick up a book in which pictures are present, leaf through the pages, obtain the sense of the story and relate the story to an observer without having read one single word in the story. However, when this story is programed the photographs and illustrations are placed on slides which cannot move in sequence unless and until some interaction has taken place between the typewriter and the pupil.

For example, one story has a line of ducklings about to cross the street and a large truck is moving towards them at the intersection. In order for the student to determine whether or not these ducks make their passage safely, he or she must respond to several questions or type several words before the denouement slide appears. The suspense cannot be maintained when the student is reading a book since he is at liberty to turn the page immediately to ascertain whether any mishap had befallen the ducks. The programed version in the ERE assures continuity of student involvement from beginning to end of the materials to be learned.

CHAPTER 3

RESPONSIVE ENVIRONMENT PROGRAM AND THE COMMUNITIES

THE LOCAL COMMUNITY

The element of responsiveness in the REP goes beyond the children, youth and adults who spend time in the Talking Typewriter booths. The entire REP operation should be, and is, a function of community consent; even more, of community support. The volatility of impoverished inner city areas is so frequently front page news on TV and radio that one can readily understand how imperative the good will of the neighborhood is to the very existence of an educational project involving disadvantaged populations.

In matters of public education in New York City in 1968, the good will of ghetto and slum populations is not come by with a gracious attitude or with an administrator's platitudes. It must be nurtured and maintained, carefully and continuously; and the only good means are valid involvement of community representatives. Valid is the opposite of token or pro forma involvement, which has become less than worthless in Watts, Harlem, Hough, Bedford-Stuyvesant and East New York. REP means involvement, total involvement.

The Parents Educational Advisory Committee for East New York, with the fortuitous acrynom of P.E.A.C.E., has been and is the main vehicle for community involvement in REP. But not the sole one. The National Association for the Advancement of Colored People, the Urban League, and CORE, through their Brooklyn centers, have been, and are, close to the project.

P.E.A.C.E.'s Executive Board and General Membership meetings, which began in November of 1967, are attended by representatives from tenants' associations, parent-teacher groups, civil rights bodies and other community organizations. The administrator and staff (professional and paraprofessional) participate in these meetings and are called upon to explain their respective roles in the REP Center's operation.

The community is directly involved in REP in a number of ways. The following are two examples of involvement, each of a distinctly different kind:

1. All but three of the twenty-seven para-professionals employed in the Center are from the neighborhood. Most of them were introduced to the project as candidates for para-professional training by community organizations, their children participating in the Program, or by neighbors who were already para-professionals.

2. When P.E.A.C.E. learned of a prospective curtailment of OEO appropriations jeopardizing REP's continuation, they instituted a letter-writing campaign. (See P.E.A.C.E.'s March 26, 1968 flyer, Appendix A 6-8). An avalanche of correspondence descended upon officialdom...at the Board of Education, at the Office of Economic Opportunity, and upon other authorities in Albany and in Washington. There were responses from the Governor's office, from Senators and Congressmen, often accompanied by letters from Federal agency administrators who had been questioned about the curtailment of aid to the Program. Many parents took the responses to REP, either to share the assurances conveyed in the letters or to have the delicate language of disavowal of responsibility interpreted for them.

The letter writing campaign, which REP neither stimulated nor discouraged, is not noteworthy for the effect the correspondence may have had on the objective situation, but as a manifestation of the community's concern for REP, it is unmistakable.

Had it been necessary to post guards around the Center, the parents of the community of East New York would have volunteered to man stations around the clock. It is probably this support of the project by the community that makes extra guard details now unnecessary. REP is very much East New York's "own thing," and that identification continues to be its assurance of safety.

THE LOCAL PROFESSIONAL COMMUNITY

The initial involvement of the teachers of the eight classes in this year's demonstration research effort in the Responsive Environment Program Center included:

a. Orientation to the aims, objectives, goals and patterns of instruction for five days (approximately one hour per session).

b. Exposure to the same typewriter-related classroom experiences that their pupils will undergo.

c. Training in the application and carryover to regular class activities of REP approaches to teaching; correlations with existing curriculum efforts were also stressed.

d. The teachers were always with one of their class groups--either observing in the laboratory or actively involved in the related classroom. After a few months of involvement, six of the eight teachers were trained to write program formats (on a part-time basis).

e. Teachers were free to request special programs for specific children; these were designed to teach a skill or remedy what appeared to be a skill defect.

f. Weekly meetings involving the participating teachers and the Project Associate for Curriculum Development. Each pupil was staffed and subsequent scheduling and planning for him was geared to their evaluations of his progress.

Some comments by participating teachers were gathered at one or two of the final meetings held late in June. They included:

> ...the lab work is excellent for vocabulary building and reinforcement; especially when you take some of their vocabulary words and develop new and interesting stories using these words.
>
> ...your lab supervisors have taught first grade. They know the needs of beginning readers.
>
> I would like to see some program refinement. The more recent programs seem to be better than the earlier ones. They are more specific in their aims and patterns of lesson development than the ones that were first made.
>
> Can a group of First and Second Grade teachers--even those not involved in the program--get together to suggest some program sequences suitable for the special needs of our pupils?
>
> ...we would like to have more to do with the planning and sequences for the related classroom. It would save time and work in better with what we are doing at the school.
>
> ...more use of the expandable keyboard for some of the slower learners to teach sounds, phonics and focusing attention on one thing at a time.
>
> Some of the para-professionals need additional training. They are not very flexible; they often want to decide what the children need. Their training in skill development of the phono-visual method is good...but this can become too repetitive and does little to develop comprehension skills.
>
> What is the participating teacher's role vis-à-vis the Center para-professionals? Do we have the right to stop them when or if we see them doing something incorrectly?
>
> Para-professionals need more extensive training even in attitudes. Our children are slower--not well behaved. They keep comparing our children with the brighter ones who come here. They don't say anything--but even facial expressions can convey negative comparisons.

Comments From Participating Principals

Principal of the participating J.H.S...

I am gratified and pleased to let you know that a survey of our children has revealed that the Talking Typewriter helped to motivate some of our most difficult youngsters. For example, one boy who had been a truant for years attended the Talking Typewriter sessions faithfully even though he would avoid many other classes. The teachers informed me that the group that participated at the Talking Typewriter Center did better in their other subject areas as a result of a new lease on their educational lives. I also feel that our children have done better because some of their basic problems in reading have been attacked on an individual basis. I think that the best evaluation that I could give is the response of a high school youngster who, in your office, was asked why he enjoyed this program. The boy replied, "The machine pays individual attention just to me." This youngster, who is a Puerto Rican child with severe language difficulty, expressed it very well when he gave voice to his cry for help. I look forward to a continued association with you and your program.

The beginning of the year was somewhat confusing; there did not seem to be the necessary continuity--particularly in the related classroom. Since January, things have been excellent.

I was surprised but happy to see that some of my suggestions at a conference appeared on programs in about two weeks. In our schools we are often asked for suggestions and then these are promptly ignored or forgotten.

Principal of a participating elementary school...

The teachers...who were chosen for their willingness to try something new...seemed overwhelmed at first with the mechanics of working out schedules. They felt that their role was a passive one and they were not clear about their relationship to the para-professionals. These weaknesses have long since been overcome by the weekly conference meetings that have been set up by our teachers and by our laboratory supervisors. In the main, the teachers feel that the program is effective.

I have spoken to parents of children in the program individually and in groups. All report that their children are becoming adept in spelling and in sounding out words.

Some parents thought that their children are reading better than they would have had there been no sessions at the Talking Typewriter Center. They expressed open satisfaction and were optimistic about the results.

Because I think there have been many worthwhile outcomes, I am planning to continue the program with my primary classes next year.

THE LARGER COMMUNITY

Visitors and Visibility

The Responsive Environment Program Center in Brooklyn is the world's largest single installation of educational technology. It is one of the most highly visible and most visited installations in the United States. Thus far, since the opening of the school year, (September 1967 to August 16, 1968) upwards of 2,000 visitors from virtually every state, as well as many from European, Asiatic and African countries, have visited the Center and observed its students, its methods and its techniques.

Indeed, the United States Information Agency has scheduled the Center as a visiting site for international educators. The former United States representative to the United Nations, Arthur J. Goldberg, arranged for members of the UNICEF board to visit our installation during this year.

A partial listing of school systems, State Departments of Education, colleges, universities and other academic and professional groups that have sent representatives include the following:

City University of New York
Brooklyn College
Queens College
St. John's University
Fordham University
Yeshiva University
Columbia University
Hofstra University
Adelphi University
Catholic University, Washington
Georgetown University
Oakland Public Schools (California)
Minneapolis Public Schools
Los Alamos Public Schools (New Mexico)
New York State Department of Mental Hygiene
Institute of International Education
New York University
Freeport Public Schools (Freeport, L.I.)
San Francisco Unified School District
Bureau of Audio Visual Instruction, N.Y.C.
Valley Stream Public Schools
Finger Lakes Region Supplementary Educational Center
Anaheim City School District (Anaheim, California)
California State Department of Education
East Meadow Public Schools

This does not include hundreds of written requests for information and materials. These are usually answered within one week.

Conferences and Presentations

Complying with the clause in the Office of Economic Opportunity contract pertaining to news information and the release of information to professional and academic groups, the Project Director appeared as a panel member, speaker or moderator at professional meetings throughout the northeast. These included:

American Association of School Administrators
(A.A.S.A. - Atlantic City, February 1968)

Association For Supervision And Curriculum Development
(A.S.C.D. - Atlantic City, March 1968)

International Reading Association
(I.R.A. - Boston, April 1968)

N.Y.C. Elementary School Principals' Association
(February 1968)

Board of Cooperative Educational Services
(March 1968)

There were others as well. At all of these presentations and meetings the role of OEO in funding the REP was explained. The aims and goals of the Research and Demonstration Division, Community Action Program were also defined. In addition, presentations were made to the Board of Education of the City of New York as well as the deputy superintendents and the Superintendent of Schools.

Arrangements have already been made for various speeches, film presentations and symposia for the 1968-69 school year. A partial list of the associations for which these are planned includes:

American Association of School Administrators
Association For Supervision And Curriculum Development
National Education Association
American Education Research Association
International Reading Association
Council For Exceptional Children
National Society For The Study Of Education

Mrs. Litwin, then Project Associate for Program Development, visited the Responsive Environment Program at Chicago. She also worked closely with personnel from Chicago who visited the Brooklyn Responsive Environment Program. She has attended national and international conferences (i.e., International Reading Association, Boston; Association for Supervision and Curriculum Development, Atlantic City), and visited other computer assisted instructional installations in and around the New York area. Mrs. Litwin is currently preparing several articles for publication in professional journals so that REP can share what has been learned during the first full year of operation at the Center in Brooklyn.

Magazine Articles and Newspapers

During the 1967-68 school year there was a good deal of highly favorable publicity in both local and national newspapers and magazines.

In addition to a six-minute NBC televised report (Gabe Pressman, the Sixth Hour News, November 1968), articles in the Scripps-Howard newspapers, the New York Daily News, the Nation's Schools, Womens Wear Daily, the Reading News Report and the Readers Digest Almanac, all carried references to OEO's funding and sponsorship of the REP project.

For the 1967-68 school year, articles reflecting the efforts of the Responsive Environment Program Center in Brooklyn are currently in preparation for such publications as:

Review of Educational Research
(American Educational Research Association)

Reading Research Quarterly
(International Reading Association)

The Reading Teacher

The Journal of Reading

The Nation's Schools

The N.E.A. Journal

Phi Delta Kappan

Educational Technology

Publishers

In efforts to work with the widest variety of available materials suitable for ERE presentation, the Project Director was able to obtain written permission from publishers such as MacMillan, Harper and Row, and John Wiley to program materials copyrighted by these publishers for in-house use.

Of particular interest to the secondary school pupils was the Wiley "Springboards" series as well as the MacMillan "Gateway" materials. These consist of high interest, extremely motivational stories and articles, parts of which REP was able to program for typewriter presentation.*

The publishers have been most cooperative in this regard. Naturally, they are highly interested in new applications of their materials which are particularly appropriate for the target population.

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*The related classroom activities are specifically designed to supplement the typewriter experience using the publisher's commercially prepared materials.

CHAPTER 4

PROJECT STAFF

THE PROFESSIONAL COMPLEMENT

A single professional staff member from REP's start-up team remains with the project at this time: the Director, Dr. Benjamin L. Israel. The almost complete change of key personnel suggests a transformation in character of the operation, even though its essential nature is the same. In other sections of this Report there are references to the various changes that ensued with the passage from the first to the second periods of the project.

In February, 1968, Mrs. Zelda Litwin was promoted from Laboratory Supervisor to Project Associate for Program Development and Curriculum Coordination. On July 29, 1968, Mrs. Litwin's title was changed to that of Assistant Director. This position involves administrative duties as well as the supervision of Program Development and Curriculum Coordination.

Every effort was made to involve ethnic minority group members on the supervisory level, i.e., certified teachers serving as supervisors.

The same consideration applied in the selection of competent and qualified program writers for developing "software." Of six program writers, curriculum developers and laboratory supervisors presently on Responsive Environment Program's staff two are Negroes and a third is of Cuban extraction.

The two licensed, certified laboratory supervisors (from February 1, 1967) are Mrs. Lynne Kennard and Miss Judy Hollander. Educational decisions involving the selection of programs and the scheduling of pupils for laboratory exposure fall within their purview. The laboratory supervisors are making extensive efforts to effect even better coordination between the laboratory typewriter exposures and the related classroom experiences.

In addition there are two on-site classes at the Responsive Environment Program Center. Miss Amanda Kemp, a licensed teacher of Early Childhood Classes, conducted a kindergarten class during the A.M. session and a pre-kindergarten class (Head Start) during the P.M. session. These pupils were also alloted time at the typewriters as part of their total school experiences.

The use of consultants during the term of the present contract (1967-68) was somewhat more limited than it had been during the initial phase-in stage of the Responsive Environment Program (1966-67).

This was due, in part to:

a. curtailment of operational funds in March 1968

b. the acquisition of what was considered to be an effective *modus operandi* during the period from September 18, 1967 to February 28, 1968 and

c. the assignment of Mrs. Litwin as Project Associate for Program Development and Curriculum Coordination.

Professor Louis Rosasco, Professor Louis Simon and Professor Ruth Adams, all of the City University Department of Education, provided consultation on a regular basis. They attended Saturday sessions at the Responsive Environment Program Center at which writers and laboratory supervisors were oriented to some of the most recent and innovative approaches to linguistics, language learning and programing techniques. The differences in programing needs for primary children and secondary groups were defined and classified.

Consultants were also called in on a regular basis to evaluate programs and offer constructive comments as to suggested modifications. These were then incorporated in later revisions.

Dr. Adams worked with the related classroom para-professionals demonstrating and explaining technique in reinforcement teaching as well as concept development for young children.

The services of specialists in programed instruction, adult basic education and language development (English) for Spanish-speaking pupils, were also available to REP's staff. The suggestions and recommendations of these consultants were soon incorporated into revisions of existing programs and became parts of the techniques taught to Center writers.

The Responsive Environment Program was most fortunate in obtaining the services of Mrs. Ida Sternlieb, a former New York City principal who spent much time with the secondary school pupils. These sessions resulted in the development of several new programing techniques as well as some very unusual and creative efforts in original writing.

Samples of these creative efforts by pupils, who are severely disabled readers, can be read in the magazine which accompanies this Report (see "Talking Through the Talking Typewriter").

THE PARA-PROFESSIONAL COMPLEMENT

The basic rationale for the use of para-professionals in this program is closely in line with the aims and objectives of the Community Action Program (OEO).

a. The utilization of para-professionals is an important application of the use of anti-poverty funds to employ persons who fall within designated poverty limits (target population) in a specific geographical area.

b. A reflection of the development and creation of new jobs in education which are a direct result of the development of technology. Jobs such as these did not or could not have existed three years ago, before the advent of this type of technology.

c. The creation of community support through gainful employment at the Center.

The para-professional staff has three classifications:

1. Laboratory Assistants
2. Materials Technologists or Encoders
3. Educational Technologists (related classroom activities)

The Laboratory Assistant

The Assistant's duties serve the laboratory experience by:

a. Sequencing program card material and corresponding slide magazines for the day. These materials have been designated by licensed pedagogic personnel (laboratory supervisors). The laboratory booth assistants do not make educational decisions. They implement directions given them by licensed personnel.

b. Adjusting the instrument to suit each child according to directions given by the supervisor. These directions may also be on the program cover. This is, in effect, individualization of instruction since the same program may be used in several ways for different effects with different children.

c. Observing the child according to guidelines given to them; recording and reporting in accordance with these guidelines. In addition, bringing any other unusual behavior observed during the booth experience to the attention of the laboratory supervisor and classroom teacher.

d. Keeping adequate records--this is a skill which has to be developed. Accurately recording pupil progress; later these records are used for later evaluation by the research team.

e. Being available for immediate reinforcement or assistance outside of the booth used by children. With adults and teenagers, one laboratory assistant can observe three booths.

f. Checking for immediate recall by asking each child leaving the booth to point to or read those words which he recognizes on the type-out sheet. This helps to develop a rapport already established by the fact that the background of most of the booth assistants is similar to that of the pupils. It is also a way to maximize human involvement.

g. Administering criterion tests which are designed to evaluate the extent of learning resulting from the exposure to a program or series of programs. These tests may be formal or informal--in or out of the booth.

Materials Technologists (Encoders)

A Program Writer (usually a teacher or author, although some students and para-professionals have been taught to write programs) develops an idea and writes a story line, with dialogue and explanatory or expository material; the writer then requests visual material, such as slides, letters or words, which are then coordinated with the program. The writer places the proper encoding symbols for each line of the lesson on the encoding chart (Appendix C28). The writer must be familiar with the constraints and limitations of the ERE instrument--10 seconds of continued speech, dialogue or narrative, etc.

When the program is checked and approved by the Project Associate for Program Development, it is then given to one of the three Encoders. Encoders are para-professionals, trained to encode programs on program cards. They are also qualified as Booth Assistants and can be assigned to the laboratory as the need arises.

Two units are set aside and are used for this purpose. Working from a specially prepared program format, Encoders spend eight hours a day encoding materials that are continuously being fed to them by writers. Encoding is actually a simple process--far more simple than with most computor-assisted instruction equipment. The typing of the codes is done in everyday English, rather than in a special computer language. A newly developed program given to an Encoder can be used by a student in a booth approximately 100 minutes later.

Slides are also generally prepared by the Encoders. Some slides utilize transfer letters or direct drawing and writing. The Encoders collate the slides and assemble them in magazines which are coordinated with the program materials.

The Encoders check the entire program by going through it as a student would before placing it in the laboratory. The Encoders also catalog and maintain an inventory of more than 700 program cards designated by: Production number, Voice Encoder (male or female), Stories, and Primary grade or adult use.

Educational Technologists (Related Classroom)

The Technologist reinforces the booth experience with related learning activities. These applications of skill activities are related, whenever possible, with the day's printout material, a copy of which the child brings with him to the related classroom.

In the small group situation (one para-professional to three to four students) many types of activities are possible. Extensive use is made of audio-visual materials, including the tape recorder, overhead projector, and a listening corner. In addition, the pupil library, in-house developed games, and effective use of the chalkboard-topped desks add new dimensions to skill development. Other skills, associated with the reading process, such as listening, speaking and comprehension, are exercised. Specific efforts have been made to assign bi-lingual para-professionals to positions in the laboratory and in each of the related classrooms (primary and seconday). Non-English speaking pupils respond very well to adults who can talk to them occasionally in their own language.

What has been said about the functions of the three types of para-professionals in the Responsive Environment Program does not convey the entire story. It is not just the job they do. There is a new growth in self-image and dignity. This has been apparent in a new air of professionalism. They have a new concern about appearance, language, attitude, demeanor and punctuality.

Some of the relationships that have developed between the para-professionals and the students in the Center are noteworthy:

1. The development of a genuine understanding, rapport and empathy. This may be related, in part, to the fact that the children do not see the para-professionals as representatives of the establishment, but rather as persons much like their parents, who are there to help them.
2. The high degree of personal interest and involvement has had a salutary effect on many of the pupils, particulary among the secondary school students. Whereas they might be somewhat brusque with male teachers, they are often gallant when dealing with para-professionals in the laboratory as well as with the laboratory supervisors. The students appreciate the interest and personal involvement. They generally put forth their best efforts to take advantage of what was being offered them.

A reciprocal effect evolves as the para-professional gains confidence and poise and her performance is enhanced. Thus the para-professionals benefit and the students are better served.

In-service Training

Beginning in March 1968 one afternoon a week was set aside for training sessions designed to maintain the level of skill of the Center's

Laboratory Booth Assistants. These sessions were also designed to orient and bring to the maximum level of performance newly-hired Laboratory Booth Assistants. In addition, REP, during the course of the year had developed or adapted several new techniques involving program presentation to better meet the needs of individual students. It was deemed desirable to train all members of the staff in these patterns of presentation lest the laboratory exposure become routinized and mechanical.

Some of these sessions involved training by members of the Thomas A. Edison Industries (Talking Typewriter manufacturers) technical staff regarding the purely mechanical aspects of operation. As a result, there were fewer service calls for minor adjustments. REP's Laboratory Booth Assistants could handle these themselves.

At other sessions, the laboratory supervisors explained and discussed some of the basic concepts relevant to the ERE process.

At one session the librarian from the Brooklyn Public Library instructed the para-professionals in story-telling techniques. These proved to be most fruitful, and it was obvious from subsequent observations that some of the para-professional staff had developed real skill in story telling.

Similar training sessions are planned for the 1968-69 school year. Thereby will it become possible to build in additional areas of information the para-professionals asked for in the survey done by the evaluation team. Future inservice training sessions will deal with pupil behavior and be led by child psychologists. Professor Ruth Adams of City University is scheduled to discuss teaching primary school children, and at other sessions the regular classroom teachers will discuss the school curriculum with REP's staff. All of these training efforts will contribute to the common objective of dove-tailing the schools' work with that of REP.

PART II

THE HAPPENING

TEACHING & LEARNING RESEARCH CORP.
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The research findings reported in Chapters 5, 6, and 7, including standardized testing, attitudinal surveys, and statistical analyses, were conducted and prepared by the Teaching & Learning Research Corp., Mineola, New York.

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CHAPTER 5

INTRODUCTION TO EVALUATION

OBJECTIVES OF EVALUATION

Prior research has demonstrated that children can be taught to read by computerized instructional methods. What is not so well known, however, is the efficacy of such methods as compared with the more traditional teaching techniques. The guiding purpose of this evaluation study has been to contribute to our knowledge in this area by assessing the impact on reading of the Edison Responsive Environment (ERE), commonly known as the Talking Typewriter, as compared with the more typical reading instruction provided by the schools from which the experimental subjects were drawn.

This focus of this evaluation was addressed to the following questions:

1. With reference to word knowledge, word discrimination, and reading comprehension, do experimental subjects in the Responsive Environment Program (REP) perform at higher levels than do comparable students taught in the regular school programs?
2. To what extent, if any, is the impact of the ERE impeded or facilitated by the socio-psychological context within which the program functions? For instance, are the attitudes of the students toward the Center staff so negative as to affect the usefulness of the Talking Typewriter?
3. What has been the more general effect of the Responsive Environment Program on teachers, persons in the community, and students not in the program?

It is obvious that no one school-year study could definitively answer these questions. It was possible in this study, however, to make a contribution to this assessment through: (1) the development of instruments; (2) the establishment of "bench-mark" information on which to build more definitive studies; and (3) to make beginning assessments employing sophisticated analytical techniques.

THEORETICAL BACKGROUND OF THE RESPONSIVE ENVIRONMENT PROGRAM

The typewriters used in the Responsive Environment Program evaluated in this study were developed under an educational philosophy which is presumably based on Skinnerian Operant Conditioning and Meadian Symbolic

Interaction. A concise statement of this philosophy is contained in Professor Omar Khayyam Moore's paper, "Autotelic Responsive Environments and Exceptional Children."[1] Moore contends that complex cognitive learning skills are best learned under what he terms an "Autotelic responsive environment." This environment has the following characteristics:

1. It permits the learner to explore fully
2. It informs the learner immediately about the consequences of his actions.
3. It is self-pacing, i.e., events happen within the environment at a rate determined by the learner
4. It permits the learner to make full use of his capacities for discovering relations of various kinds
5. Its structure is such that the learner is likely to make a series of interconnected discoveries about the physical, cultural or social world.

This environment is autotelic to the extent to which the activity engaged in, while in the environment, is done "for its own sake," rather than for obtaining rewards or avoiding punishment that have no inherent connection with the activity itself.

In considering all of these characteristics Professor Moore and Richard Kobler collaborated on the development of a mechanized electronic response device which embodies to some degree these requirements. The largest installation of these devices is in the Responsive Environment Program of the New York City Public Schools.

The Edison Responsive Environment machine Talking Typewriter is of course only part of a milieu which was specifically designed with the machine as its focal point. The following discussion relates specifically to the activity of the child in the booth and is not intended to examine the overall environment.

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[1] Moore, Omar Khayyam, "Autotelic Responsive Environments and Exceptional Children," in O. J. Harvey (ed.) Experience, Structure and Adaptability, New York: Springer Publishing Co., 1966.

The first characteristic relates to free exploration. The machine allows exploration within the confines of the typewriter keyboard. Motor responses to the multicolored keys elicit responses from the machines, i.e., a typed letter, and if the motor response occurs within a planned program, a pre-recorded verbal response from the machine.

The second characteristic refers to immediate feedback. The machine provides instantaneous reactions to the motor and verbal responses. At most the delay is ten seconds in the case of recorded vocal playbacks and is very short for typing responses.

The third characteristic relates to the self-pacing aspect of the program. There is a moderate asymmetry in the ability of the child to monitor the speed at which he responds to the machine. On the one hand he can retard the pace of his responses, but he has to work within the confines of the speed of the program. The number of words and the number of letters typed varies depending primarily on the interpolated directions and verbal reactions.

Each typewriter is located in a separate 5' x 5' wood paneled soundproof booth. The child in each booth can be observed through a one-way mirror on either the laboratory side or the observation "perimeter." A "para-professional" booth assistant, is able to speak to or listen to the child, thus giving him personal assistance and encouragement when it is needed.

The Responsive Environment Program is an example of the use of instructional technology for individualized instruction. Each student has available to him a wide choice of programs each utilizing a unique set of words and pictures. The specified sequence of instruction is tailor-made depending on the diagnostically determined needs of each student.

Basically then, the program is an attempt to provide for a wide range of individual differences which are ordinarily presented to teachers in a regular classroom setting.

Glaser[1] has presented six requirements for programs which adapt to individual differences. A comparison of the REP with his requirements may give some information as to the flexibility and constraints of the ERE.

1. "The conventional boundaries of grade levels and arbitrary time units for subject-matter coverage need to be redesigned to permit each student to work at his actual level of accomplishment in a subject-matter area, and to permit him to move ahead as soon as he masters the prerequisites for the next level of advancement.

2. "Well-defined sequences of progressive, behaviorally defined objectives in various subject areas need to be established as guidelines for setting up a student's program of study. The student's achievement is defined by his position along this progression of advancement.

3. "A student's progress through a curriculum sequence must be monitored by adequate methods and instruments for assessing his abilities and accomplishments so that a teaching program can be adapted to his requirements.

4. "Students must be taught and provided with appropriate instructional materials so that they acquire increasing competence in self-directed learning. To accomplish this, the teacher must provide the student with standards of performance so that he can evaluate his own attainment, and teaching activities must be directed by individual learner accomplishment.

5. "Special professional training must be provided to school personnel so that they can accomplish the evaluation, diagnosis, and guidance of student performance that is required to organize instruction for individualized learning--as contrasted to the total-class management of learning.

6. "The individualization of instruction requires that the teacher attend to and utilize detailed information about each student in order to design appropriate instructional programs. To assist the teacher in processing this information, it seems likely that schools will take advantage of efficient data processing systems."

Requirement 1 states that conventional boundaries of grade levels and time need to be flexible in order to permit the child to move ahead as his skill development warrants. While the REP has not broken down the classroom boundaries or time limits because the demonstration design made this impractical, there is, however, no boundary in the possible use of programs and any child can be given the program matched to his level of ability and individual needs. In addition, the next advanced program within each skill classification is presented to the student upon successful completion of the previous program without regard to any artificial time schedule. The level of the programs used is in no way limited by any grade level designations.

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[1] Glaser, Robert, "Adapting the Elementary School Curriculum to Individual Performance," in Proceedings of the 1967 Invitational Conference on Testing Problems. Educational Testing Service, 1967, pp. 5-6.

It can be said, therefore, that with regard to the program of instruction per se, the REP meets Glaser's first requirement.

Requirement 2, concerned with progressive, behaviorally defined objectives, was intended for use with the total school curriculum. However, if one views reading as a collection of interdependent skills, i.e., vocabulary, word analysis, comprehension, etc., one can evaluate the various skill programs of the REP according to Glaser's second requirement. An examination of the total program reveals the heavy dependence upon the Sullivan Reading Material and The Bank-Street Readers. Both series have been designed developmentally in accordance with reading skill objectives.

A student's progress and achievement status at the REP is determined by his performance on several programs covering each of the reading skills mentioned above. The development of behavioral goals is a joint effort of teacher, laboratory supervisor, and technician and tends to rely on information provided by the student's behavior on the ERE machine.

Requirement 3 states that a teaching program must adapt itself to the abilities and accomplishments exhibited by the students on various monitoring devices.

To some extent the assessment of progress relied on teacher judgments rather than on specific diagnostic instruments, designed particularly for judging the progress of individual students. There are few standardized diagnostic procedures which would give laboratory supervisors highly relevant information about the matching of student to program type and level.

Requirement 4 refers to the development of self-directed learning by provision of appropriate feedback. The ERE does provide auditory and visual feedback to the student as he progresses through the program. This feedback, however, does not allow the child to compare his performance with normative standards. The Moore philosophy states that children should engage in activities "for its own sake" rather than to succeed in comparison with standards laid down by others.

Requirement 5 relates to the preparation of personnel dealing with evaluation and guidance of student learning. The REP has excelled in recruiting indigenous personnel to serve in complex para-professional roles. They give little training in the theory and methods of reading. They are trained well in doing the routine tasks of laboratory and classroom aides, and the difficult job of assessment and diagnosis is left to the laboratory supervisors.

Requirement 6 relates to the use of broad ranges of information by the teacher. The staff of REP has kept detailed information about students. This usually consists of the daily printout of a student's typing and some index of level of phase of program. While this information is probably not as detailed as Glaser would like, it does provide some clues about matching student and program. No help is provided by data processing systems.

A brief description of the Talking Typewriter itself may be helpful to a better understanding of ensuing remarks. When the child is first brought into the booth he is confronted with what appears to be a typewriter--octocolored keyboard. This is no ordinary electric typewriter, it is a machine with three distinct memory systems, an audio-recording system, and two visual exhibition systems all of which are integrated by a central electronic logic and control system. Any combination of these three systems may be utilized for a child's lesson. It is usual though, that all facets of this multimodal system be integrated in one program. The integration of all systems is the essence of the ERE.

The time spent by each student with the machine is approximately 20-25 minutes per day. Due to physical limits of this ERE Center as well as the various phases of Talking Typewriter an entire class cannot be in their booths at the same time. The child is either ushered into the booth or into the related classroom for a follow-up lesson depending upon his group's schedule. When his session is completed in the booth, he and his classmates are taken into regular classrooms at the Center for follow-up instruction. This instruction is conducted in groups of three to four children under the tutelage of para-professionals. The instruction makes full use of the children's repetoire of past and present skills. The follow-up period is conducted for periods of approximately 20 minutes. A description of the classrooms can be found in another section of this report.

REVIEW OF THE LITERATURE

A review of the literature on reading research will contain many references to Omar Khayyam Moore's Talking Typewriter and his widely heralded successes in teaching very young children to read.[1] However, concrete evidence for these successes has not been widely disseminated. A thorough review of the Psychological Abstracts and the Education Index failed to reveal many reports of controlled research studies using the Talking Typewriter.

There are presently three demonstration programs sponsored by the Office of Economic Opportunity using the ERE machine or a comparable educational method of instruction:[2] Project Breakthrough in Chicago, under the direction of A. Louis Scott, and a program in Greeley, Colorado, formerly under the direction of Dr. Glenn Nimnicht, in addition to the Responsive Environment Program in Brooklyn. Research data on the first two programs were not available to the Teaching and Learning Research Corp. staff at the time of preparation of this report. The most comprehensive source of prior research was the report prepared by the STACO Corporation after the first five months of the Responsive Environment Program of the New York City Public Schools.[3]

The STACO analysis focused on kindergarten and first grade children. No data was presented on other participants.

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[1] Jeanne Chall in her book Learning to Read uses O.K. Moore as one of her respondents in collecting expert opinion on how children should be taught to read. Yet there are few references to his work in the book.

[2] For a brief history of the Talking Typewriter see Appendix A.

[3] "The Pupil Response: Contrasts in First Grade and Kindergarten," Report prepared by STACO for the N.Y.C. Board of Education, July 27, 1967 Westbury, N.Y.

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Table 1 (following page) presents the Mean Grade Equivalent scores achieved by classes of the first-grade children in the Experimental and Control Groups on both the Pre-test and Post-test of the Metropolitan Achievement Tests--Primary I.

The STACO statistical analysis lead to the authors conclusion that after "equalization" the experimental first-grade post-test mean was 1.99 and the control 1.77[1] giving a two-months superiority to the experimental class. This "equalization" is based on the fact that the experimental classes were somewhat inferior to the control classes at the beginning and the experimental classes mean changes fell between the best scoring and worst scoring control classes.

The changes in both groups averaged about six-tenths of a grade equivalent score (the average change of the first grade norm group during a six-month period). The average change of the experimental group of about .67 grade equivalent units was not large enough to bring their June scores to average norm group performance.

The scores used in this analysis, however, were not the same as scores used in the present analysis. Harcourt, Brace and World now provides a different set of norms (the total group) which yield higher grade equivalent scores for the same performance.[2] These differences may explain some of the post-test differences between last year's and this year's groups.

In addition there were mean differences in the number of absences between experimental and control classes. Since experimental classes had more absences than did the control classes, and the regression of absences on post-test score was negative, adjusting for absences increased the predicted differences between experimental and control groups.[3]

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[1] These total means are possibly too high since the average of all groups was 1.82 (See page 14 of STACO Report).

[2] Comparison of total group norms with regular norms show about a .2 grade equivalent difference in the center portions of the scale.

[3] Attendance could be considered to be one of the desirable outcomes of the experimental program. In that case, this variable should not be used to carry out differences between groups.

TABLE 1

MEAN METROPOLITAN ACHIEVEMENT SCORES OF EXPERIMENTAL AND CONTROL FIRST GRADE CLASSES DURING THE FIRST FIVE-MONTH PERIOD OF OPERATION * (STACO)

	CLASS	N	PRE-TEST	POST-TEST	CHANGE
EXPERIMENTAL	1	19	1.21	1.75	.54
	2	20	1.15	1.94	.79
CONTROL	3	11	1.09	1.43	.34
	4	27	1.44	2.42	.98
	5	24	1.27	1.84	.57
	6	20	1.16	1.39	.23

* STACO Report, prepared for Responsive Environment Program, July 27, 1967

STACO's analysis of the kindergarten lead them to conclude that the experimental kindergarten's adjusted mean was 2.56 raw score points higher than the control group's mean. (Table 2 following page.) (One experimental kindergarten was classified as a control because they supposedly had little exposure to the Responsive Environment Program.)

There have been other reports, nearly all of them reproduced by the Responsive Environments Corporation. One study reported that twenty experimental children surpassed twenty-two control kindergarten children by 1.7 months on the Gates Reading Test after six-months exposure to the ERE instrument. However, no mean scores of the groups were presented making the findings somewhat difficult to interpret.

Maya Pines,[1] citing another study, reported that five retarded children, who had been rejected by the public schools, were accepted at Hamden Hall Country Day School. After seven weeks of exposure to the Talking Typewriter their behavior had improved enough that they were accepted back into the public schools.

Di Lorenzo and Salter reported on results of the Mt. Vernon ERE Program.[2] In the 1965-66 period, the exposed children had Stanford-Binet IQ changes of -1.88 IQ points. In the 1966-67 period the change was +1.66, with samples of 49 and 48 respectively. The authors concluded that..."The Mt. Vernon ERE Program was not effective.... The use of the ERE machine has since been discontinued." In comparison with other programs reviewed in the report, however, the Mt. Vernon Program did not seem less effective.

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[1] Pines, Maya, "How Three-Year-Olds Teach Themselves to Read--And Love It," Harpers, 1963.

[2] Di Lorenzo, Louis and Ruth Salter, "An Evaluative Study of Pre-Kindergarten Programs for Educationally Disadvantaged Children: Follow-up and Replication." Paper presented at AERA Annual Convention, February 10, 1968. Also "Evaluative Study of Pre-Kindergarten Programs for Educationally Disadvantaged Children." Office of Research and Evaluation, N.Y. State Dept. of Education, November, 1967.

TABLE 2

MEANS OF EXPERIMENTAL AND CONTROL KINDERGARTEN CLASSES ON THE PEABODY PICTURE VOCABULARY TEST DURING THE FIRST FIVE-MONTH PERIOD OF OPERATION * (STACO)

	CLASS	N	PRE-TEST MEAN	POST-TEST MEAN
EXPERIMENTAL	1	23	55.65	59.74
	2	19	49.58	52.58
CONTROL	3	22	45.64	50.00
	4	24	50.83	55.17
	5	16	55.06	56.06
	6	18	50.00	51.44

* STACO Report, prepared for Responsive Environment Program, July 27, 1967

Steg, et. al.,[1] showed that four-year-old children could identify all upper case letters of the alphabet after five months, 20-minute daily exposure to the ERE machine. They could not, however, identify all lower case letters.

In summary, the most reasonable conclusion one can draw from a review of the literature on the Edison Responsive Environment machine is that more evaluative efforts must be made prior to a definitive assessment of its effectiveness in teaching reading. It is in this spirit that this study has been conducted.

EVALUATION ISSUES

Academic Achievement in Participating Schools and Adjacent Schools From the Same District

The introduction of experimental programs very often has a beneficial effect on classrooms which are not experimentally treated, which serve as comparison or control classes. This effect may be partially attributed to a process called the "Hawthorne" effect. The desire of control class teachers not to be surpassed by the new method leads to more feverish activity and a greater concentration of attention on the behavior which is deemed to be the objective of the new program. The combination of the "Hawthorne" effect (or effect of being experimentally considered) along with the increased attention to the fact that both experimental and control classes will be evaluated, often produces an elevation of scores for both groups. Thus the mean achievement level of the school may rise rather drastically after the introduction of new programs. This fact sometimes obscures the real contributions of experimental programs. If control group teachers know that their classes are being tested (in this case they did because their classes were given a pre-test) at the end of the school year, then their increased compensatory activity may make the experimental variable appear less effective than it would have been had the control classes not known that they were part of the experiment. To provide some evidence on this issue, the achievement scores of schools which were located near the center but which were not part of the experiment, were compared with the achievement scores of schools which contained the experimental and control classrooms.

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[1] Steg, Doreen, Marcienne Mattleman, Donald Hamnill, "Effects of Individual Programmed Instruction on Initial Reading Skills and Language Behavior in Early Childhood." Paper presented to the International Reading Association, Boston, Massachusetts, April 25, 1968.

In Table 3, (following page) the mean and median second-grade reading scores are presented for both participating and adjacent schools.

The tests were administered by school personnel and were part of the City-Wide testing program. The tests were Form C of the Metropolitan Achievement Test.

While there is great variability in the mean scores for schools, the participating schools clearly surpass the performance of second grades of the schools located nearby. The highest achieving participating school is 224, with a mean score of 2.87, which is slightly higher than the norm group grade level performance which would be about 2.7. The highest performing adjacent school has a mean grade score equivalent of 2.10.

Thus the participating schools have on the average substantially exceeded the performance of the adjacent schools. This difference may be attributed to a combination of experimental and extraneous causes including sampling errors. The hypothesis that the experimental program has a strong effect on overall school performance in addition to the directly involved classes is strongly suggested by these findings.

The Influence of Test Selection on Achievement Scores in Experimental and Control Classes

The Metropolitan Achievement Test has a number of forms and levels available for use. It is expected, however, that similar achievement estimates would be yielded even though different forms and adjacent levels

TABLE 3

MEAN AND MEDIAN READING ACHIEVEMENT IN EXPERIMENTAL AND ADJACENT SCHOOLS IN APRIL 1968 (SECOND GRADE)

School	Mean Reading	Median Reading
158	1.88	1.77
*159	2.67	2.39
182	2.10	1.87
*202	2.09	1.87
213	2.05	1.77
*224	2.87	2.69
34[illegible]	1.89	1.78

* Experimental School

are used. It was found, however, that some students, presumably non-reading eighth graders, had achieved reading scores far beyond teachers' expectations. High reading scores can be obtained by marking a sufficient number of responses on the test. In the case of the intermediate level test, a 3.0 grade equivalent is produced at the chance response levels. After finding 67% of the students guessing[1] in the eighth grade experimental classes, an inspection of all the scores for ceiling and floor effects was made. This analysis is important for the overall interpretation of achievement score changes during the school year.

Grade One

While the percentage of students whose scores were within the Guessing Range for the Pre-Post-test is comparable for both the Experimental and Control Groups (4% to 5%), the percentage of Experimental subjects reaching the Ceiling point was four times that of the Control Group (12%-3% - Table 4). It is likely that some number of the Experimental Groups would have obtained a higher grade equivalent on this test had they been given the Upper Primary Form (Ceiling - 6.0) rather than the Primary Form Ceiling 3.3. This difference, therefore, would have increased the Experimental Group's mean substantially more than the Control Group's mean.

Grade Two

While 10% of the Control Group scored within the Guessing Range on the Pre-test, almost four times that figure, 36% of the Experimental groups Pre-test scores were within that range. These scores must be considered as possible exaggerations of the true scores for those students. The result

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[1] Any score which is at or below the frequency correct which would be expected on the basis of marking all items, was assigned to the "guessing" category. Some students who didn't complete all the items may be erroneously placed in this category.

TABLE 4

PERCENTAGES OF EXPERIMENTAL AND CONTROL STUDENTS SCORING IN GUESSING AND CEILING REGIONS ON THE METROPOLITAN ACHIEVEMENT TEST

	Experimental				Control			
	% Guessing		% Ceiling		% Guessing		% Ceiling	
Grade	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test	Pre-test	Post-test
1	--	4	--	12	--	5	--	3
2	36	2	0	21	10	3	3	31
8	67	13	0	0	17	6	0	0
10	33	17	0	0	58	33	0	0

of this large number of Guessing Scores was to inaccurately raise the Experimental Group's test mean more than that of the Control Group. On the Post-test the percentage of subjects scoring at the Ceiling level is comparable for both the Experimental and Control Groups (2% and 3% respectively). The result of the great difference on the Pre-test and Comparability of the Post-test would indicate that the mean growth G.E. for the Experimental Group greatly underestimated the true growth score.

While the Control Group reached the Ceiling Score more often than the Experimental Group (31% and 21% respectively) it is estimated that the resulting difference in mean scores would not be nearly as great as those differences caused by the Guessing Range discrepancy described above.

Grade Eight

While slightly more than twice the percentage of the Experimental Subjects as Control Subjects scored within the Guessing Range on the Post-test (13% and 6% respectively) the Pre-test Scores indicate that almost four times the percentage of Experimental Subjects as Control Subjects scored within this range on the Pre-test, (67% and 17% respectively). Two-thirds of the Experimental Group's Pre-test Scores may have been inaccurately inflated resulting in the Pre-test Mean Score also being distorted. This discrepancy was therefore reflected in the Growth Score indicating the difference between Pre- and Post-test. This Growth Score was therefore made lower for the Experimental Group than for the Control Group because of the direction of the error.

Neither group has any subjects reaching the Ceiling Point.

Grade Ten

A substantial percentage of both the Experimental and Control Group's scores were within the Guessing Range on the Pre-test (33% and 58% respectively). The difference on the Pre-test between the two groups (Control 1.76 times Experimental) is similar to the difference found on the Post-test between the Experimental and Control Groups (17% and 33% respectively or Control 1.96 times Experimental). Because of this similarity, it is estimated that the accuracy of both the Experimental and Control Groups Scores on the Pre- and Post-test would not affect the relationship between the two groups means. At the same time, it is estimated that the Growth Scores might change, however, any differences would be in the same direction as now reported.

Neither Group had any subjects reaching the Ceiling Point.

In summary, it is concluded that while there is justifiable utility for this study in the use of the Metropolitan Achievement Tests as criterion measures of reading proficiency, further assessments of the efficacy of the ERE should employ other measures of reading ability as well.

CHAPTER 6

THE SOCIO-PSYCHOLOGICAL CONTEXT

STUDENT ATTITUDES TOWARD SELF AND OTHERS

Prerequisite to an adequate understanding of the impact on a student's performance of an educational technology, such as the Responsive Environment Program, is an assessment of the student's attitudes toward the setting within which the technology functions. In the case of the Talking Typewriter, student attitudes toward conditions surrounding their experience with the Typewriter may be extremely relevant. In order to gain an estimate of student attitudes toward REP Center conditions, a series of questions was put to second, eighth, and tenth grade students concerning: (1) attitudes toward their teachers both in their schools and in the REP; (2) attitudes toward the pleasantness of the REP building; and (3) attitudes toward the difficulty of academic requirements imposed upon them. On the basis of prior research, it was also deemed important to assess other student attitudes and beliefs which could minimize or facilitate the impact of the technology under investigation. In general, these attitudes are attitudes the students hold about themselves with reference to: (1) their abilities to learn; (2) their occupational aspirations, i.e., their occupational desires; and (3) their anticipations of what is going to happen to them in the future, i.e., the jobs they actually expect to achieve.

While it is true that a teaching method can influence many of the beliefs of students about themselves, prior research has demonstrated that certain attitudes are much more likely to be dependent upon others (persons) not involved in the teaching methodology, and furthermore, that these attitudes affect the impact of the teaching method. Students' self-conception of academic ability, students' occupational aspirations, and students' occupational expectations about their future are likely to be such attitudes.

Certainly no one is going to be so naive as to assume that any one method of instruction imposed for a small amount of time will counter all other experiences of an individual. Sophisticated educators are not in search of an educational "miracle pill" which will solve all of their problems. And those who evaluate a teaching method on the basis that it must remedy all learning problems are likely to discard methods which make a worthwhile contribution along with useless methods. In fact, there is no single method of instruction in education today that would stand this test. The point of this discussion is that if you place students with poor reading levels into an experimental reading program with handicapping self-attitudes as compared to a supposed control group of poor readers who are not handicapped by self-attitudes, it is doubtful that the experimental students will learn more than the control students. In fact, such comparison does not allow for an adequate assessment of the experimental program.

In the case of the current study, the comparison groups provided to the evaluators were selected prior to an assessment of self-attitudes, or for that matter, prior to the development of instruments to assess these characteristics. As will be shown later (Table 5, page 58), students in the REP Center differed considerably on key student attitudes from the experimental subjects. Because of this difference, it is only possible to assemble normative groups with which to compare the experimental groups to determine whether the basic hypothesis of experimental effect on reading is tenable. In addition, the following findings and discussion may provide a sounder bench-mark basis against which to evaluate the REP in the succeeding months and years. During this year, for example, it was possible to develop with tests in another city, and then with tests on students in New York City, reliable and valid instruments for assessing self-concept of reading ability. No such instrument was previously available to the researchers (i.e., with known and satisfactory reliability and validity).

Attitudes Toward the Responsive Environment Program Center

The findings reported in Table 5 suggest that students in the Center are generally satisfied that Center teachers want to help them, are interested in them, are fair and explain things clearly. While eighty percent of the students indicated that school work in their school was too hard, only fifty percent of the students indicated that the work at the Center was too hard. Apparently, going to the Center is not viewed as resulting in harder work for most of them. The site of the Center, the building, was also viewed as a pleasant place for the students. Perhaps the most negative aspect of the student's attitudes toward conditions surrounding the Center, had to do with the trip to and from their schools to the Center. About half of the students indicated the trip was too long.

In light of these findings, and the lack of any conflicting evidence, it is concluded that student attitudes toward the Center are not likely to be serious impediments to the effectiveness of the Responsive Environment Center.

Student Conceptions of Self and Others

In contrast to the rather positive attitudes of students toward the Center and Center staff, the students at the Center who were evaluated in this study indicated very low self-conceptions of academic ability, low occupational aspirations, and low expectations for their occupational futures. (See Table 6, page 58.) When this is coupled with the fact that these students were initially extremely poor readers, often three to four years behind, and were initially low on every other measure of academic skill, it seems reasonable to conclude that the Center was given high risk students. In contrast, the comparison group of students exhibited more positive self-attitudes and higher occupational aspirations and expectations. In other words, the comparison group, were more typical of cross-sectional populations of students which include high achievers. For

TABLE 5

ATTITUDES OF SECOND GRADERS TOWARD THE STAFF OF THEIR SCHOOL AND THE STAFF OF THE RESPONSIVE ENVIRONMENT PROGRAM CENTER

Figures cited are percentages responding "yes"

Statement	School	REP Center
The teachers want to help you.	97	98
The teachers are really interested in you.	93	92
The principal is friendly.	91	89
The teachers explain things clearly.	89	94
This building is a pleasant place.	89	92
The teachers expect you to work too hard.	80	58
The teachers are fair and square.	78	77
The trip to and from is too long.	51	52

TABLE 6

STUDENT PERCEPTIONS OF SELF AND OTHERS

A Comparison of Students In:				
Responsive Environment Center High School and 8th Grade Combined			New York City School	
	N = 47		N = 34	
	$\overline{X}$	SD	$\overline{X}$	SD
Variables:				
General Self-Concept of Academic Ability	23.56	6.3	26.90	6.1
General Self-Concept of Reading Ability	22.77	5.5	25.00	5.9
Occupational Aspirations	40.40		53.50	
Occupational Plans	37.20		40.60	
Perceived Parental Evaluations of Students	16.37	4.6	18.63	3.5
Perceived Teacher Evaluations of Students	16.13	4.2	18.19	4.4

example, group means for general self-concept of academic ability in three studies supported by the U.S. Office of Education, using the same general self-concept of ability scale used in this study, ranged between 27 and 28.[1] The mean score New York City comparison group in this study was 26.9 (Table 6; the experimental group mean was only 23.6).

The New York City comparison group of students also responded in similar fashion to the student in general cross-sectional studies on the scales assessing aspirations and expectations. On the other hand, the experimental group in the Responsive Environment Center, indicated much lower occupational aspirations and expectations than did the comparison group.

In addition, the REP Center students indicated that both their parents and teachers held lower evaluations of their academic abilities than did the students in the comparison groups. The mean scores of the comparison group were again much more similar to general populations including high achievers.[2]

The most important conclusion to be made is that if the Responsive Environment Program has an effect on student learning, the magnitude of this effect is likely to be underestimated using the comparison groups provided the evaluators. For a more definitive assessment of the REP, follow-up studies should employ random or match-random assignment of subjects to treatment and control groups. Matching should be on the basis of characteristics previously shown to affect learning. This study, while not employing matched control groups, does, however, make two important contributions to the evaluation of the REP.

The first contribution concerns data gathering strategies. In this first year, evaluation instruments and methodology have been developed, background data assembled, and bench-mark information provided. This study has made a later, more definitive evaluative study possible. The tooling-up phase is completed.

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[1] Brookover, Wilbur, Edsel Erickson and Lee Joiner, Self-Concept and School Achievement in High School, Vol. III (East Lansing: Bureau of Educational Research Services, Michigan State University, 1967).

[2] Ibid.

The second contribution of this study is that, through the use of a comparison group which is typical of the general student body, it is possible to describe the relative reading achievements of those who were originally very poor readers and who were provided with reading instruction in the Responsive Environment Center. The following chapters will show how, despite socio-psychological limitations, the students of the REP Center over a one-year period, made important gains in reading achievement.

PARENTAL ATTITUDES ABOUT THE RESPONSIVE ENVIRONMENT PROGRAM

One of the basic goals of the Office of Economic Opportunity for the Responsive Environment Program was to involve the Community-Parent group with the Talking Typewriter Center. Teaching and Learning Research Corp. designed and mailed a questionnaire (see Appendix B) to the parents of each child participating in the program. The questionnaire probed the parents' views as to their perceptions of the effectiveness of the Talking Typewriter Program; their understanding of and familiarity with the program; their communication with their child's classroom teacher about the Responsive Environment Program's performance; and the parents' personal contact, both past and desired for the future, with the Talking Typewriter Center. Of the 399 Questionnaires mailed, 84 (21%) were returned.

While only 9% of the parent group had previously used the Talking Typewriter, and only 57% had visited the Center, 88% expressed interest in going to the Center because the effect of their child's participation in the program had been reported to them by the home school classroom teacher. In addition, 68% felt that they would directly benefit from using the Talking Typewriter themselves.

The parents responded that they were well informed as to their children's activities at the Center. Approximately 97% of the parents reported that they knew what the children were doing at the Center and had seen the work of the child produced at the Center. Another set of questions was designed to evaluate the parents' opinions about their children's experiences with the Talking Typewriter. Parental responses indicated that 83% felt that their children were benefiting from attendance at the Center while 99% reported that their children enjoyed their experiences at the Center.

Of the parents reporting, 91% expressed positive feelings about the work of the Responsive Environment Program and its value to the schools. At the same time, 85% of the parents reported that their children's teachers felt that the Talking Typewriter was a worthwhile experience, while 91% of the parents reported that their children's grades had improved as a result of their experiences at the Center. In addition to the responses called for by the questionnaire, many parents spontaneously added written comments about the Responsive Environment Program. Some of these are recorded below:

> If more children had the chance to use the Talking Typewriter, I am sure there wouldn't be so many children that can't read or recognize the words shown to them.
>
> ...I personally think it is a wonderful thing, especially for children who have any sort of speech defect. My son had a very bad defect, and I can honestly say that his speech has greatly improved since he has been going to the Center.
> ...I know his school work has benefited....It is a marvelous program...
>
> I think my son is more interested in school since he started going to the Center...I hope that this program will last forever.
>
> This program should be in every community and in every city. This is the greatest thing that could happen in the Educational System.
>
> ...If the schedule were changed it would make the program available to more children in the area.
>
> My son is attending the pre-kindergarten class. Since his attendance I find a great deal of improvement in him when he expresses himself in his playing. When I'm reading a bedtime story to him he wants to read along with me. I find also that he enjoys spelling words. Now he is learning to read the bedtime stories to me and I must say I enjoy every minute of it.

> Thank you for giving my son this opportunity. I hope that someday this system will be operating in every school in the city because we desperately need it.

In summary, the responding small parent group feels:

a. highly informed about their children's activities at the Responsive Environment Program Center

b. very confident in the efficiency of the program

c. highly satisfied with their children's reactions to the experience

d. convinced that their children's teachers felt that they were profitably enriching and supplementing the typical classroom program through involvement with the Responsive Environment Program

TEACHER PERCEPTIONS OF THE RESPONSIVE ENVIRONMENT PROGRAM

A twenty-item questionnaire examined the eight participating home school teachers' opinions of the Responsive Environment Program's effect in helping students to develop appropriate academic and social behavior. Teachers indicated that they believe that the program has helped the children in reading, with somewhat less impact on their emotional and social development.

All eight teachers agreed that the program has generally helped the children. Four teachers saw the program helping children socially and two indicated that it helped the children emotionally.

Six of the eight teachers felt that the children had developed a greater interest in outside reading and five believed that the program has helped the children in other school subjects. When asked what school subjects were affected, the teachers indicated that performance in language arts subjects such as English and Spelling was benefited most by the program.

Five teachers saw their children as more willing to attempt school work but most teachers felt that the participation in the program had not changed the child's conception of school. Six teachers felt that the children enjoyed their experiences at the Center, and all of the teachers felt that the children had developed good relationships with the Center staff. Six teachers said that the children looked forward to the trip to the Center. Four teachers observed less absenteeism in their classes.

When teachers were asked to compare the Edison Responsive Environment Program with the regular reading program, three teachers viewed the Responsive Environment Program as more beneficial. Five saw it as more beneficial than the remedial reading program currently in use. Three teachers indicated that the Center para-professional staff was not as capable as their counterparts in their own home school.

The teachers were less positive about their ability to coordinate their own reading program with that of the Center's program. Four teachers felt they were able to connect the two programs and five stated that the Center was not emphasizing the same skills as they were in their own classrooms. When asked whether they wished to continue their participation with the Center, half said that they wished to continue next year.

In summary, the teachers saw positive academic gains, interest and enjoyment on the part of the children. They also viewed the program as being more beneficial than the regular remedial reading program in current use. Some teachers saw social or emotional changes in the children, and most saw the children developing good interpersonal relationships with the staff at the Center.

Half of the teachers felt that they were able to connect their learning programs in the schools with those of the Center. There are serious questions which can be raised about the appropriateness of the criteria used to evaluate the effectiveness of the Responsive Environment Program as well as the school reading program. It is probably that the criteria used (the reading subtests of the Metropolitan Achievement Test) are not appropriate for either the inschool or Responsive Environment Center program. This matter should be investigated in further studies.

RESPONSES OF THE PARA-PROFESSIONAL PERSONNEL ABOUT THE RESPONSIVE ENVIRONMENT PROGRAM

Students at the REP Center are constantly under the guidance and supervision of their regular classroom teachers, laboratory supervisors and para-professional aides (Educational Learning Assistants). Accordingly, the students experienced a high degree of contact with our para-professionals in both academic and behavioral situations. In this unique setting, therefore, the para-professional served a central function for the students and was an integral part of the ERE process. An open-ended questionnaire was administered to the 23 para-professional aides at the Center.

Most saw the goals of the program as the improvement of reading ability and attitude. Two of the para-professionals felt that one of the goals of the Talking Typewriter was to foster social and civic attitudes that would "make better citizens of the coming generation." The entire group thought that they were working towards the achievement of these goals. The majority felt that their presence at the Center and their special and particular awareness of the children's problems was a significant factor in their ability to assist the students. Only eight para-professionals felt that they were helping by merely pointing out errors in phonics and in words.

Five of the para-professionals stated that in striving for these goals, they could not try any new methods--"shouldn't try anything on my own without adequate professional supervision." However, those of the group who worked in the related classrooms did adapt such activities as vocabulary and phonic games. These games were originally suggested to the para-professionals in their inservice training by Drs. Adams and Cadley, Consultants to the Responsive Environment Program, and Mrs. Litwin, Project Associate for Program Development and Curriculum Coordination. The majority of the para-professional group felt the need for this added training in addition to that which they had been receiving on a regular basis. Those who desired further training, signified that information on some aspects of child psychology was most needed.

Others desired more information about speech behavior, phonics and program encoding. A quarter of the group felt no need for added training. More information about child psychology was needed to alleviate the para-professionals' predominant concern with behavior problems.

There is consensus among the para-professionals that both aspects of the program (Talking Typewriter and related classroom activities) are interdependent.

In summary, the para-professionals felt that they were active and valuable participants in the Responsive Environment Program. While they believe themselves well equipped to do their job, some felt that even more inservice training than that which they are receiving would improve their services to the children.

CONCLUSIONS

The findings that the self-attitudes of the students assigned to the Responsive Environment Program were poorer than the students used in this study as a control group costs serious limitations on the utility of usual experimental-control group comparisons. It is quite obvious that in such an analysis the effects of the ERE are likely to be underestimated. In order to compensate for this limitation, in addition to the more commonly employed comparison designs, the following chapter will present findings from multivariate analyses which take into account initial differences in control and experimental subject and the effects of these differences on the impact of the ERE.

As far as the attitudes of students toward the Center, or the attitudes of the teachers, para-professionals, and parents, it is concluded that such attitudes are not likely to be impeding the effectiveness of the REP in New York City. As a clinical observation, based upon being present while collecting other data over a six-month period, the evaluations were generally impressed with the high morale and commitment shown by all parties to the program. The confidence the staff manifested is simply much greater than that found in most schools, in the evaluator's experience. Such enthusiasm, however, might have positive effects on the students, independent of the effects of the ERE. It is not suggested that staff morale be lowered in order to assess the effects of the ERE. It is suggested that the enthusiastic stance of the staff deserves further consideration in follow-up evaluations of the ERE.

CHAPTER 7

DATA ANALYSIS AND FINDINGS

Analysis and findings relevant to the effectiveness of the Responsive Environment Program are organized into two sections, multivariate analysis and simple comparisons. The multivariate analysis takes into account many different variables at one time as well as original differences in the experimental and control or comparison groups. Multivariate analysis is inportant inasmuch as methodological limitations were imposed which tended to confound comparison of the experimental and control groups.

The first methodological limitation imposed was due to the manner of sampling employed. Since it was required that the sampling unit in this study represent classes rather than persons it was considered likely that experimental subjects and control group subjects differed on important variables. This suspicion was confirmed with socio-psychological data in findings reported in the previous chapter. Therefore, to provide a way of answering questions concerning the impact on reading skills of the Edison Responsive Environments, it was necessary to employ multiple linear regression analyses. The use of multiple regression analyses permitted statistical control of pretreatment experimental-control group differences.

Inasmuch as multivariate analysis has not been widely employed by educators a brief discussion of its nature and objectives is presented prior to a statement of findings employing this method of analysis. For the reader not concerned with technical problems in evaluation, or already versed in multivariate procedures, the following section may be omitted in favor of the statements on findings which follow.

MULTIVARIATE ANALYSIS MODELS

Multiple linear regression analysis can be explained in a straightforward manner. First, a criterion measure is identified (Y) which might, for example, represent post-experiment scores on Metropolitan Word

Discrimination. Our concern, then, is to try to explain variation in scores which students obtain on Word Discrimination on the basis of other presumably relevant information concerning the student. Variables which are in actuality relevant to Y should explain some of the variation in Y; if a variable is irrelevant to Y it should explain none of the variance in Y. That is, if visual acuity is relevant to reading, variations in visual acuity will be associated with variations in reading.

These presumably relevant variables (labelled $X_1 \ldots X_k$) can be thought of as predictors of Y and each person's score on Y can be considered a linear combination of these relevant variables, appropriately weighted, and an error term or a residual reflecting the extent to which X does not explain Y. In perfect explanation, there will be no error or "residual." This is rarely achieved in educational studies. Magnitude of this error can be considered an index of the extent to which we have failed to account for variation in Y; larger error representing poorer explanation. Conversely, the percent of variation in Y that is explained is an index of successful explanation.

Returning to a consideration of Metropolitan Word Discrimination Scores, if we were asked to guess an individual student's score on that variable ($\hat{Y}$), our best guess, or the one which would result in the least total errors would be the mean, $\bar{Y}$, for each student. But suppose we possess other information concerning the student, for example, sex. Would we alter our guess? Would we still guess the mean ($\bar{Y}$) regardless of whether the subject is male or female? The answer is that if we believed sex relevant, our best strategy would be to guess the mean for males ($\bar{Y}_M$) if the student is a male and the mean for females ($\bar{Y}_F$) if the subject is a female. However, if this procedure of predicting differently for males and females failed to result in less error than simply predicting the overall mean ($\bar{Y}$) for both sexes, we would conclude that information about sex is irrelevant to Metropolitan Word Discrimination Scores. In essence, this is the basic way of proceeding in a step-wise regression analysis.

A more formal treatment would be as follows:

Research Question: Do the sexes differ on Metropolitan Word Knowledge?

Full Model: $\hat{Y} = a_0u + a_1x_1$

where:

$\hat{Y}$ = predicted score on MWK

a_0 = regression constant (a common weight)

u = a unit victor

a_1 = a least squares regression weight for sex

x_1 = sex; 1 if male, 0 if female

Since a detailed exposition of the development of the statistics is beyond the scope of the present report suffice it to say that a full model's success in predicting the criterion (Y) can be quantified as R^2, the percent of variation in Y explained by the model.

The R^2 obtained from the use of the full model which includes information about the sex of the subject can be compared with the R^2 obtained from what is termed a restricted model where sex is purposefully ignored. The restricted model would be as follows:

Restricted Model:

$\hat{Y} = a_0u$

where: $\hat{Y}$ = predicted score on Metropolitan Word Knowledge

a_0 = a common weight (the grand mean)

u = a unit vector (every subject scored 1)

(This is referred to as model 90 in the FORTRAN IV format)

An F-Ratio involving R^2 full and R^2 restricted can then be computed along with an alpha level. The formula for the F-Ratio is:

$$F = \frac{(R^2 \text{ full} - R^2 \text{ restricted}) / (M_1 - M_2)}{(1 - R2 \text{ full}) / (N - M_1)}$$

where:

R^2 full = percent of total variance accounted for with knowledge of sex

R^2 restricted = percent of total variance accounted for without knowledge

M_1 = the number of linearly independent vectors used to calculate R^2 full

M_2 = the number of linearly independent vectors used to calculate R^2 restricted

N = number of subjects

1 - R^2 full = percent of unaccounted for variances

This general approach can be expanded to include several X variables, a rule of thumb being that there ought to be about ten times as many subjects as predictor variables. Kelly, etc. al., have demonstrated that the multiple linear regression analysis is a general form of analysis of which analysis of variance, tests, and covariance analysis are special cases.

MULTIVARIATE ANALYSIS OF ACHIEVEMENT SCORES

First Grade Analysis

Determination of the impact of the REP involved an analysis of post-experiment scores on:

1. Metropolitan Word Knowledge scores expressed as grade equivalents;
2. Metropolitan Word Discrimination scores expressed as grade equivalents;
3. Metropolitan Sentence Reading scores expressed as grade equivalents.

The above criterion scores were obtained through tests administered at the REP Center (June, 1968). Analysis involved determining whether or not the experimental treatment produced superior performance or these criteria when contrasted with control groups. Any differences that may have existed on Metropolitan Reading Readiness, absences, and sex between experimental and control groups are taken into account, or controlled for in the analysis. Intercorrelations of the above variables are presented in

Table 7 (following page). Only subjects with complete data are represented in the correlation, N = 143.

a. Basic Question, One

Is there a difference between the two treatment groups, or post-word knowledge, over and above that which we would expect on the basis of readiness, sex, and absences?

Full Model:

Post-Word Knowledge $(\hat{Y}) = a_0u + (a_1)$ (exp. - controlled) $+ (a_2)$ (readiness) $+ (a_3)$ (Sex) $+ (a_4)$ (absences)

$R^2 = .51$

Restricted Model:

Post-Word Knowledge $(\hat{Y}) = a_0u + (a_2)$ (readiness) $+ (a_3)$ (Sex) $+ (a_4)$ (absences)

$R^2 = .46$

(1) Answer, Question One

Yes, there is a difference in favor of the experimental group.
$F = 13.69, \alpha = .0003$

(2) Interpretation

Information concerning whether a student belongs to the experimental or control groups would result in significantly more accurate prediction of his performance on word knowledge than knowing his readiness score, sex, and number of absences. Clearly, even after controlling for sex, readiness, and attendance differences, the REP resulted in increased performance of experimental subjects over control subjects.

b. Basic Question, Two

Is there a difference between the two treatment groups on post-word discrimination over and above that which we would expect on the basis of any differences in readiness, sex, and absences?

Full Model:

$$\hat{Y} = a_0u + a_1x_1 + a_2x_2 + a_3x_3 + a_4x_4$$

TABLE 7

CORRELATION MATRIX FOR FIRST GRADE REGRESSION SAMPLE

	Metropolitan Readiness	Absences	Metropolitan Achievement Primary I Word Knowledge Post-test	Metropolitan Achievement Word Discrimination Post-test	Metropolitan Achievement Sentence Comprehension Post-test	Sex: Female = 1 Male = 0
Group:	2	3	4	5	6	7
1. Exp = 1 Cont = 0	0.205	0.178	0.356	0.242	0.340	0.104
2. Metropolitan Readiness Total		0.005	0.680	0.541	0.580	0.151
3. Absences			0.030	0.037	0.037	0.045
4. Metropolitan Achievement Primary I Word Knowledge Post-test				0.636	0.688	0.140
5. Metropolitan Achievement Word Discrimination Post-test					0.650	0.069
6. Metropolitan Achievement Sentence Comprehension Post-test						0.108

where:

X_1 = experience - control

X_2 = readiness score

X_3 = sex

X_4 = absences

$R^2 = .31$

Restricted Model:

$$\hat{Y} = a_0u + a_2y_2 + a_3x_3 + a_4x_4$$

$R^2 = .29$

(1) Answer, Question Two

Yes, there is a difference favoring the experimental group.
$F = 3.7, \alpha = .05$.

(2) Interpretation

The interpretation parallels question number one except that a different criterion is considered. An increase in the alpha level from .0003 to .05 and a decrease in the magnitude of the regression weight (a_1) for Experimental-Control suggests that the program produced less effect on word discrimination than on word knowledge.

c. Basic Question, Three

Is there a difference between the two treatment groups on sentence reading over and above that which we would expect on the basis of any differences in readiness, sex, and absences?

Full Model:

$$\hat{Y} = a_0u + a_1x_1 + a_2x_2 + a_3x_3 + a_4x_4$$

$R^2 = .39$

Restricted Model:

$$\hat{Y} = a_0u + a_2x_2 + a_3x_3 + a_4x_4$$

$R^2 = .33$

where: $X_1 \ldots X_4$ are the same as indicated in Question Two.

(1) Answer, Question Three

Yes, there is a difference favoring the experimental group.
$F = 11.48, \alpha = .0009$.

(2) Interpretation

The interpretation parallels question number one except that a difference criterion (reading sentences) is involved. Again, even after controlling for sex, readiness, and attendance differences, the REP resulted in increased performance of experimental subjects over control subjects.

In all of these analyses, the weight associated with variable X, in models 1, 2, and 3 indicate the differential prediction of experimentals over controls. In all cases, the data indicates that we would predict a higher post score for the experimental subjects than for the control subjects. Subject's readiness, sex, and number of absences were equalized in the statistical analysis.

Further analysis was conducted on word knowledge, word discrimination, and sentence reading reducing the number of covariables. In the analyses which follow full models involving knowledge of readiness and experimental treatment are compared with restricted models involving only knowledge of readiness status. In other words, readiness differences are controlled, sex and absences being ignored. The results are as follows:

d. Basic Question, Four

Is there a difference between the two treatment groups on word knowledge over and above that which we would expect on the basis of their readiness scores?

Full Model:

$$\hat{Y} = a_0u + a_1x_1 + a_2x_2$$

$R^2 = .51$

Restricted Model:

$$\hat{Y} = a_0u + a_2x_2$$

$R^2 = .46$

where:

X_1 = experimental - control

X_2 = readiness score

(1) Answer, Question Four

Yes, there is a difference favoring the experimental group.
$F = 14.10, \alpha = .0002$.

e. Basic Question, Five

Is there a difference between the two treatment groups or word discrimination over and above that which we would expect on the basis of their readiness scores?

Full Model:

$$\hat{Y} = a_0u + a_1x_1 + a_2x_2$$

$R^2 = .31$

Restricted Model:

$$\hat{Y} = a_0u + a_2y_2$$

$R^2 = .29$

where:

X_1 = experimental - control

X_2 = readiness score

(1) Answer, Question Five

Yes, there is a difference favoring the experimental group.
$F = 3.68, \alpha = .05$

(2) Interpretations

As in the previous analysis of word discrimination differences between experimental subjects and control subjects subsequent to the treatment, the higher alpha level and lower magnitude of the weight associated with the experimental-control vector suggests that the REP is less effective in eliciting improved performance in word discrimination than is the case for improving word knowledge and sentence use.

f. Basic Question, Six

Is there a difference between the two treatment groups on reading sentences over and above that which we would expect on the basis of their readiness scores?

Full Model:

$\hat{Y} = a_0u + a_1x_1 + a_2x_2$

$R^2 = .39$

Restricted Model:

$\hat{Y} = a_0u + a_2x_2$

$R^2 = .33$

where:

X_1 = experimental - control

X_2 = readiness score

(1) Answer, Question Six

Yes, there is a difference favoring the experimental group.
$F = 11.73, \alpha = .0008$.

Summary and Conclusions, First Grade Multivariate Analyses

It can be unequivocally stated that the REP Center students outperformed the control students in word knowledge, word discrimination and sentences at the end of the year's program. Of the three criteria, word discrimination performance was least affected. The effect of the program was apparent over and above differences in post-test performance attributable to sex, readiness, and attendance. At best, 51 percent of the variance in performance on the reading tests can be explained on the basis of sex, readiness, attendance, and program; at worst, 31 percent.

Second Grade Analysis

The analysis of the effect of the experiment on second grade reading performance involved three criteria:

Y_1 = post-Metropolitan Word Knowledge scores expressed as grade equivalents;

Y_2 = post-Metropolitan Word Discrimination scores expressed as grade equivalents;

Y_3 = post-Metropolitan Sentence Reading scores expressed as grade equivalents.

It was also possible, at this grade level, to determine the prior status of the students on the same variables through the administration of alternate forms prior to the experiment. It will be recalled that first grade data analysis concerned pre-experiment scores on a single variable--reading readiness. Predictor variables for the various statistical models are identified as follows:

X_2 = pre-Metropolitan Word Knowledge

X_3 = pre-Metropolitan Word Discrimination

X_4 = pre-Metropolitan Reading Sentences

X_5 = sex M = 1 F = 0

Because of incomplete data on absences it was impossible to treat attendance as a covariable. However, an analysis of attendance as a criterion at the second grade level disclosed no connection between attendance and treatment classification. Table 8 (following page) shows the intercorrelations among variables included in the multivariate analysis, N = 74.

a. Basic Question, One

Do second grade experimental and control subjects differ on post-word knowledge when differences in pre-word knowledge and sex are controlled?

Full Model:

$$\hat{Y} = a_0u + a_1x_1 + a_2x_2 + a_5x_5$$

$R^2 = .40$

Restricted Model:

$$\hat{Y} = a_0u + a_2x_2 + a_5x_5$$

$R^2 = .40$

TABLE 8

CORRELATION MATRIX FOR SECOND GRADE REGRESSION SAMPLE (N = 74)

Group:	1	2	3	4	5	6	7	8
1.Exp = 1 Cont = 0	1.00	-.256	-.262	-.231	-.214	-.262	-.150	-.297
2.Met.Pre-Word K		1.00	.868	.843	.611	.704	.847	.018
3.Met.Pre-Word Disc			1.00	.750	.673	.808	.674	.091
4.Met.Pre-Sentences				1.00	.460	.551	.837	.010
5.Met.Post-Word K					1.00	.799	.570	.162
6.Met.Post-Word Disc						1.00	.602	.120
7.Met.Post-Sentences							1.00	-.061
8.Sex								1.00

where:

X_1 = experimental - control

X_2 = pre-word knowledge

X_5 = sex

(1) Answer, Question One

No, experimentals and controls do not differ as post-word knowledge when differences in pre-word knowledge and sex are controlled.
$F = .02, \alpha = .88$

b. Basic Question, Two

Do second grade experimental and control subjects differ on post-word discrimination when differences in pre-word discrimination and sex are controlled?

Full Model:

$Y = a_0u + a_1x_1 + a_3x_3 + a_5x_5$

$R^2 = .66$

Restricted Model:

$Y = a_0u + a_3x_3 + a_5x_5$

$R^2 = .65$

where:

X_1 = experimental - control

X_3 = pre-word discrimination

X_5 = sex

(1) Answer, Question Two

No, experimental subjects and control subjects do not differ on post-word discriminations when differences in pre-word discrimination and sex are controlled.
$F = .33; \alpha = .57$.

c. Basic Question, Three

Do second grade experimental and control subjects differ on post-sentence reading when differences in pre-sentence reading and sex are controlled?

Full Model:

$Y = a_0u + a_1x_1 + a_4x_4 + a_5x_5$

$R^2 = .71$

Restricted Model:

$Y = a_0u + a_4x_4 + a_5x_5$

$R^2 = .71$

where:

X_1 = experimental - control

X_4 = pre-sentence reading

X_5 = sex

(1) Answer, Question Three

No, experimental subjects and control subjects do not differ on post-sentence reading when differences in pre-sentence reading and sex are controlled.
$F = .39, \alpha = .71$

Summary and Conclusions, Second Grade Multivariate Analyses

Further analysis of the second grade data is not required since it has been demonstrated in the first three models that knowledge of the student's treatment produces no additional explanation of his post-score beyond knowledge of the student's sex and pre-treatment score on the same variable.

It is important, from a methodological point of view, to recognize two facts which surround the apparent lack of success of the program with second graders despite its dramatic effect upon first grade reading performance. First, Table 3 shows that the experimental groups were far behind the controls in reading performance at the beginning of the experiment and although a multivariate analysis takes into account, or equalizes this initial difference joining the controls, it cannot eliminate the fact that the experimental subjects and control subjects differed on other unmeasured factors relevant to performance. The inability of the system to provide researchers with the authority to control the compositions of experimental and control groups through accepted research methods such a random assignment is self-defeating in this sense. Obviously, the REP was unable to overcome the unfavorable combination of variables operating to produce the initial differences between the groups studied. If it could, one would have to conclude that skills brought past experience to a situation, and the influence of home and other facets of the school could be made irrelevant. This, given our present knowledge, is absurd. At least this ought not be the criterion for final evaluation.

Second, it is clear that reading performance has begun to crystallize and this fact is reflected in the higher pre-post correlations for the second graders contrasted into the first graders. It may be recalled that the largest R^2 at grade one was .51. This included information on treatment, sex, absences, and pre-test scores. But at the second grade level, about seventy (70) percent of the variation in reading performance at the end of the year can be explained on the basis of reading scores obtained in the fall and the sex of the respondent. An explained variance of seventy percent is a high figure. In essence, a procedure must be extremly powerful to overcome this trend. Whether adequate power to alter the more stabilized reading skills of second graders (to a discernable point using the Metropolitan tests) in a period or less of instruction per day at the REP may be a relevant administrative question.

Pre-Kindergarten and Kindergarten Multivariate Analyses

Table 9 (following page) shows initial and post-treatment statuses of experimental and control children on the Peabody Picture Vocabulary Test (PPVT). Kindergarten experimental children appear to maintain their position as superior to controls from pre- to post-test. However, the difference is not statistically significant. Effectiveness of the program on PPVT should have produced statistically significant differences favoring the experimentals in a one-tailed test. The lack of controls at pre-K level precluded direct comparisons at that level. Instead all groups, pre-K and K experimental and control children were combined in a single multiple regression analysis

TABLE 9

INTERCORRELATIONS AMONG VARIABLES INCLUDED IN THE PRE-KINDERGARTEN AND KINDERGARTEN REGRESSION ANALYSIS N = 46

Variable	1	2	3	4	5
1.Grade 1 = K 0 = Pre-K	1.00	-.542	.016	.027	.126
2.Treatment 1 = Exp 0 = Cont		1.00	.098	.074	-.186
3.Pre-PPVT			1.00	.777	-.225
4.Post-PPVT				1.00	-.259
5.Sex M = 1 F = 0					1.00

where pre-differences were controlled.

The full model:

$$\overset{\wedge}{(Y)}$$

$$\text{PPVT-post} = a_0u + a_1 \text{ (PPVT-pre)} + a_2 \text{ (EC)} + a_3 \text{ (sex)}$$

$$R^2 = .61$$

was compared with the restricted model:

$$\overset{\wedge}{(Y)}$$

$$\text{PPVT-post} = a_0u + a_1 \text{ (PPVT-pre)} + a_3 \text{ (sex)}$$

$$R^2 = .61$$

This analysis confirms the apparent lack of differences between the control and experimental groups on post-PPVT.

ANALYSIS OF MEAN ACHIEVEMENT SCORES

Changes In Peabody Picture Vocabulary Test Scores In The Pre-Kindergarten Class

The Peabody Test was administered as both a pre-test and a post-test for both the kindergarten and pre-kindergarten classes. The Peabody requires the child to identify the pictorial referent of a spoken word. This activity, while not explicity required in Responsive Environment Program, should be influenced by exposure of words and their vocal and pictorial referents, which is part of the stimulus quality of the Talking Typewriter aspect of the Responsive Environment Program.

The Peabody was administered individually with items from 16 to 80 being administered to all students, a procedure which was adapted for the purposes of our research. The test score listed in Table 10 (following page) is the correct number after getting credit for the first fifteen items. Thus the values, 48.57 for pre-test and 53.93 for post-test are elevated over what would be expected with standardized administrations. The difference between the scores is, however, an estimate of the combination of maturation and educational program. This value of 5.3 mean raw

TABLE 10

MEANS, STANDARD DEVIATIONS, AND N'S FOR KINDERGARTEN AND PRE-KINDERGARTEN EXPERIMENTAL AND CONTROL GROUPS

	Pre-K & K Experimental Combined	K Experimental	Pre-K Experimental	K Control Teacher 20
Variables	$\bar{X}$ SD N	$\bar{X}$ SD N	$\bar{X}$ SD N	$\bar{X}$ SD N
Peabody Picture Vocabulary Test Pre-test	49.10 6.80 28	50.36 7.62 14	48.57 5.54 14	47.78 6.57 23
Peabody Picture Vocabulary Test Post-test	54.56 6.41 33	55.23 7.60 19	53.93 5.17 14	53.40 6.32 20

score points can be given some meaning by referring to the mental age equivalents for these scores. For the middle part of the scale, a five raw score point difference means about an eight-month mental age difference.

Kindergarten Peabody Picture Vocabulary Test Analysis

The Peabody scores of the kindergarten groups paralleled very closely the results of the pre-kindergarten class with the post-test score of the experimental kindergarten class surpassing the pre-kindergarten class by less than two raw score points. (See Table 10.) The same assumptions about maturation and program are relevant here and the results are somewhat less pronounced here than in the pre-K. The pre-kindergarten class wasn't organized until the fall school term was nearly completed and the program time for the pre-kindergarten students was consequently much less. The maximum experimental effect can be estimated by comparisons with the changes exhibited by the control kindergarten class. This value (5.6 raw score points) is slightly higher than the changes occuring in the experimental classes 4.9 raw score points). This finding is strong evidence that the program has no influence on the skills measured by the PPVT.

The experimental kindergarten class was also tested in June with the Primary I Word Knowledge and Word Discrimination subtests of the Metropolitan Achievement Test. While the mean grade equivalent score for Word Knowledge was 1.20 and 1.34 for Word Discrimination (N=12, N=7), many students were scoring at chance score levels. The control kindergarten was not tested and therefore no comparisons are possible.

A Comparison of Kindergarten, Pre-Kindergarten, and First Grade on the Metropolitan Readiness Test

The experimental kindergarten and pre-kindergarten classes, were administered sections of the Metropolitan Readiness Test. An examination of the results of this test and a comparison with the results of the first grade control group pre-test scores indicate that means of the experimental kindergarten and pre-kindergarten exceeded those of the first grade control classes on each subtest.

The most significant difference can be found in the alphabet section of the test where the experimental kindergarten mean was 1.84 times that of the control first grade while the mean of the pre-kindergarten group was 1.54 times that of the control first grades. (See Table 11 on following page.)

Some previous research indicates that this section of the Readiness Test offers the highest correlation of any subtest with future reading achievement.[1]

Mean Reading Achievement at the End of First Grade

Table 12 (page 88) contains the information regarding the first grade reading achievement. The experimental classes all score near or above 2.0, which is the median performance level for New York City students who are finishing second grade. The mean grade equivalent scores of the experimental classes are 0.4 and 0.3 grade equivalent units higher than the control class on the word knowledge and word discrimination subtests respectively.

Mean Reading Achievement Changes In The Second Grade

The second grade reading scores have been previously analyzed using linear regression analysis. The three subtests have been used separately as dependent variables while sex, pre-test scores and program have been used as predictors. The experimental variable provides no increase in prediction over the predictability of pre-test and sex used alone. Thus in the second grade there is no convincing evidence that assignment to the

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[1] Manual, Metropolitan Readiness Test. The correlation between alphabet and first grade reading was .55 -- the highest of any of the subtests.

TABLE 11

COMPARISON OF MEAN AND MEDIAN SUBTEST SCORES ON THE METROPOLITAN READINESS TEST FOR EXPERIMENTAL KINDERGARTEN AND PRE-KINDERGARTEN GROUPS vs. CONTROL FIRST GRADE CLASSES[1]

		Control Groups	Experimental K	Experimental Pre-K
Word Meaning -	Mean	6.6	9.3	
	Median	6.7	9.4	
Listening -	Mean	8.9	10.2	
	Median	9.2	10.6	
Matching -	Mean	6.4	7.5	
	Median	6.1	7.0	
Alphabet -	Mean	8.0	14.7	12.3
	Median	8.1	14.8	14.0

[1] The Kindergarten and Pre-kindergarten scores are from the post-testing this June. The First Grade Control group scores were taken from their pre-test during the beginning of the first grade (October 1967).

TABLE 12

MEANS, STANDARD DEVIATIONS AND N'S FOR FIRST GRADE EXPERIMENTAL AND CONTROL GROUPS

Variable	Experi-mental $\overline{X}$ SD N	Control $\overline{X}$ SD N	Teacher 4-Exp. $\overline{X}$ SD N	Teacher 7-Exp. $\overline{X}$ SD N	Teacher 8-Exp. $\overline{X}$ SD N	Teacher 1-Cont. $\overline{X}$ SD N	Teacher 2-Cont. $\overline{X}$ SD N	Teacher 3-Cont. $\overline{X}$ SD N	Teacher 5-Cont. $\overline{X}$ SD N	Teacher 6-Cont. $\overline{X}$ SD N
Met. Readiness Pre-test	44.52 19.57 80	41.43 17.60 115	32.47 16.03 19	39.33 17.86 30	56.32 17.48 31	28.50 18.71 8	39.39 11.20 18	40.52 15.91 29	40.69 18.21 29	47.45 17.44 29
Met. Ach. Pri. I Word Knowledge Post-test	2.23 .57 82	1.78 .54 126	1.95 .46 24	2.09 .38 26	2.54 .62 32	1.31 .40 23	1.70 .33 25	1.79 .50 27	1.78 .44 24	2.25 .54 27
Met. Ach. Pri. I Word Discrimination Post-test	2.16 .48 83	1.82 .72 126	1.97 .41 24	2.31 .50 26	2.19 .47 32	1.30 .57 23	1.62 .31 25	1.74 .71 27	1.85 .48 24	2.51 .78 27
Met. Ach. Pri. I Sentence Comprehension Post-test (Raw score)	8.15 3.13 81	6.34 2.83 126	6.67 2.29 24	7.48 3.30 25	9.88 2.72 32	4.78 1.93 23	5.92 1.85 25	6.63 2.82	6.17 3.41 24	7.93 2.80 27
Gates-McGinitie[1] Word Knowledge	1.83 .60 81	1.72 .76 110	1.50 .15 23	1.68 .45 26	2.20 7.17 32	1.24 .24 9	1.47 .27 25	1.66 .50 26	1.68 .50 25	2.24 1.22 25
Gates-McGinitie Comprehension	1.87 .65 83	1.76 .57 110	1.53 .17 25	1.70 .46 26	2.27 .81 32	1.21 .14 9	1.52 .15 25	1.73 .50 26	1.72 .52 25	2.24 .69 25
Absences	27.64 10.74 61	19.57 15.32 131	No data	32.66 11.71 29	23.09 7.22 32	17.13 13.22 23	19.92 15.14 25	17.15 14.52 27	18.79 15.44 29	24.59 16.56 27

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[1] Gates-McGinitie is a reading test administered by the NYC Schools in April of the First Grade

experimental program leads to increased achievement as far as School 159 is concerned. (See pages 48, 49 for evidence that the mean achievement level of the whole school may have been raised.)

The reading achievement levels at the end of the year are attenuated because many students achieved perfect scores (see page 49). This would indicate that the true end-of-year achievement scores were much higher than the obtained scores, although this restriction would probably not affect greatly the conclusion that the program had no discernible beneficial influence on the second grade groups.

The actual achievement changes during the school year amounted to .82 and .81 on the Word Knowledge subtest for the control and experimental groups and .87 and .86 on the Word Discrimination subtest. The raw score change on the Sentence Comprehension subtest favored the experimental group 4.67 to 3.24. (See Tables 13 and 14 on pages 90, 91.) The beginning level of the experimental and control groups was below 2.0 on both the Word Knowledge and Word Discrimination subtests. Thus both groups finished the year below the median performance level of the normative group.

Reading Achievement Changes During The Eighth Grade (J.H.S.)

The pre-test post-test changes for the experimental group surpassed the control group in both word knowledge and reading. (.58 to .49 in word knowledge and 1.43 to .16 in reading. See Table 15, page 91.) This superiority is even more noteworthy because the actual change possibilities are restricted somewhat for this group. (See page 53.) The large increase in comprehension is even more striking since it represents the fundamental combination of all reading skills. This increase in reading skills reduced the gap for these students between their level of performance and normative grade level.

TABLE 13

MEANS, STANDARD DEVIATIONS, AND N'S FOR SECOND GRADE EXPERIMENTAL AND CONTROL GROUPS[1]

		Experimental	Control	Teacher 10-Cont.	Teacher 11-Cont.	Teacher 19-Cont.	Teacher 12-Exp.	Teacher 13-Exp.
Variable		$\bar{X}$ SD N	$\bar{X}$ SD N	$\bar{X}$ SD N	$\bar{X}$ SD N	$\bar{X}$ SD N	$\bar{X}$ SD N	$\bar{X}$ SD N
Word Knowledge	1. Pre-test	1.63 .50 53	1.87 .93 55	2.30 .71 23	No data	1.57 .42 31	1.48 .47 26	1.93 1.11 27
	2. Post-test	2.44 .61 53	2.46 .68 81	2.58 .63 30	2.18 .60 27	2.53 .65 24	2.28 .68 27	2.68 .56 26
Word Discrimination	3. Pre-test	1.81 .61 53	1.96 .79 52	2.15 .78 23	No data	1.69 .46 28	1.61 .49 26	2.13 .86 27
	4. Post-test	2.67 .73 50	2.83 1.10 67	2.99 1.09 27	2.40 .83 21	2.93 1.04 19	2.46 .75 27	3.06 .87 23
Sentence Comprehension	5. Pre-test	5.63 2.69 51	6.70 5.67 53	6.70 3.58 23	No data	5.55 2.99 29	5.00 2.42 26	7.76 7.12 25
	6. Post-test	10.30 2.79 50	9.94 7.58 81	9.83 3.14 30	8.26 2.80 27	9.38 3.75 24	10.12 2.91 26	13.08 12.36 24
	7. Absences	21.00 13.69 22	26.59 16.35 78	26.80 18.06 25	2.66 16.13 24	26.52 14.84 29	21.29 13.95 21	Virtually No data N = 1

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[1] These scores were computed for all students appearing for the Metropolitan Achievement pre-test and post-test. The statistical analyses were conducted on the scores of students present for all tests.

TABLE 14

SECOND GRADE - EXPERIMENTAL AND CONTROL CHANGE DURING 1967-1968 AS MEASURED BY MEAN DIFFERENCES ON THE PRIMARY BATTERY OF THE METROPOLITAN ACHIEVEMENT TESTS

	Control Group	Experimental Group (REP)
Word Knowledge	.82	.81
Word Discrimination	.87	.86
Sentence Comprehension	3.24	4.67

TABLE 15

N, MEAN AND STANDARD DEVIATION FOR EIGHTH GRADE EXPERIMENTAL AND CONTROL CLASSES

METROPOLITAN READING TESTS--INTERMEDIATE BATTERY

	PRE-TEST						POST-TEST					
	Word Knowledge			Reading			Word Knowledge			Reading		
	N	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.
Control	18	5.60	1.75	18	5.70	1.72	18	6.09	1.60	18	5.86	1.44
Experimental	15	3.87	.74	15	3.74	.71	15	4.45	.92	15	5.17	1.11

Reading Achievement Changes During The Tenth Grade

Growth, as measured by the differences between pre-test and post-test scores, was greater for the experimental group than for the control group for both the word knowledge and reading section of the Metropolitan Achievement Test intermediate level. While the difference in favor of the experimental group on the word knowledge section was small (.58 vs. .55, see Table 16 on following page), the experimental group's growth on the reading section was 1.74 times that of the control group (.87 vs. .50). This difference in reading comprehension, a skill which utilizes vocabulary and word-attack abilities, is even more outstanding considering the retarded level of the groups. Table 17 (page 93) summarizes the achievement information for all students who took either the pre-test or post-test.

Assessment of Reading Achievement of Students Who Participated in the After School Center

The New York City Board of Education permitted children from the neighborhood schools to use the Center's facilities after the regular school day was completed. Many students and teachers used the opportunity throughout the school year. Prior to their use of the Center, each child was tested with the Metropolitan Reading Achievement subtests.

The information presented below refers to those children who were available for testing at the end of June. A large number of other children participated in the program throughout the year, but these were not considered in this analysis, since they were not actively using the facilities during the June period.

Table 18 (page 94) contains the post-test grade equivalent scores: the mean change in reading scores and the number of students in the various categories.

Grade 1

During the three months that this class was at the Center they made a gain of .38 in Word Knowledge and .27 in Word Discrimination. Both of

TABLE 16

N, MEAN AND STANDARD DEVIATION FOR TENTH GRADE EXPERIMENTAL AND CONTROL CLASSES

METROPOLITAN READING TEST--INTERMEDIATE BATTERY

	PRE-TEST						POST-TEST					
	Word Knowledge			Reading			Word Knowledge			Reading		
	N	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.	N	Mean	S.D.
Control	12	4.48	1.67	12	4.69	1.22	12	5.03	1.43	12	5.19	1.95
Experimental	24	4.50	1.21	25	4.45	1.04	24	5.08	1.68	24	5.32	1.48

TABLE 17

MEANS, STANDARD DEVIATIONS, AND N'S FOR EIGTH GRADE AND TENTH GRADE EXPERIMENTAL AND CONTROL GROUPS

	8 & 10 gr. Exp.	8 & 10 gr. Control	8 gr. Exp.	8 gr. Control	10 gr. Exp.	10 gr. Control
Variable	$\overline{X}$ SD N[1]	$\overline{X}$ SD N	$\overline{X}$ SD N	$\overline{X}$ SD N	$\overline{X}$ SD N	$\overline{X}$ SD N
Met. Ach. Int. Test Word Know. Pre-test	4.19 1.06 74	5.17 1.65 51	3.84 .77 27	5.38 1.69 33	4.40 1.15 47	4.80 1.51 18
Met. Ach. Int. Reading Comp. Pre-test	4.23 1.00 73	5.31 1.64 51	3.97 .82 27	5.53 1.72 33	4.38 1.07 46	4.91 1.41 18
Met. Ach. Int. Word Know. Post-test	4.83 1.42 46	5.67 1.57 34	4.45 .88 19	5.82 1.59 26	5.07 1.62 27	5.16 1.42 8
Met. Ach. Int. Reading Comp. Post-test	5.26 1.33 47	5.59 1.64 34	5.17 .40 19	5.75 1.65 26	5.32 1.45 28	5.06 1.48 8

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[1] These are the number of children present at each testing.

TABLE 18

READING ACHIEVEMENT CHANGES IN THE AFTER SCHOOL PROGRAM AT THE RESPONSIVE ENVIRONMENT CENTER

Grade	N		Mean Change		Post-test G.E. Scores	
	WK	WD[1]	WK	WD	WK	WD
1	21	23	.38	.27	1.95	1.98
1 & 2	23	18	.64	.93	2.47	2.81
3	16	8	.59	1.7	3.35	4.3
4[2]	12	RDG 12	.42	.02	WK 3.86	RDG 3.50
5 + Above	25	22	.56	.61	5.32	5.14

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[1] WK = Word Knowledge
WD = Word Discrimination
RDG = Reading

[2] Four of the students were given the intermediate test as a pre-test and scored at the base level. Their post-test was changed to the elementary level. This accounts for the apparent slight decline in performance.

these gains seem consistent with the post-test means for the group: WK 1.95 and WD 1.98.

Grades 1 and 2

The Center's records do not indicate the grade-level for these subjects and therefore no comment can be made for the post-test means of 2.47 on WK and 2.81 on WD. Mean changes for the seven months of the program was .64 for WK and .93 for WD which would by itself be indicative of nearly normal progress in reading.

Grade 3

During the seven months of the program the Mean change for this group was .59 on Word Knowledge and 1.7 on Word Discrimination. The mean scores on the post-test were 3.35 and 4.30 respectively.

While there does not appear to be any significant growth on the Word Knowledge section, the growth for Word Discrimination is more than two-times the expected change. This growth figure is especially significant in that this group began at a level below grade average.

Grade 4

Because many of this group were pre-tested at a level either too easy or too difficult, little can be said about growth figures. Post-test results indicate that this group scored approximately one year below grade level (3.86 WD and 3.50 on reading).

Grade 5

As with the first and second grades, Center records do not indicate the actual grade level for these subjects. Their class may range from fifth grade to tenth, eleventh or twelfth. The post-test means for this group were 5.32 on WK and 5.14 on reading. Such mean scores for a group such as this are at least one year below the average and most probably from two to four years below average. In light of this fact, growth figures of .56 on WK and .61 on reading for the seven months of the program must be viewed differently than if this were a complete fifth-grade class.

The After School Program poses a slightly different problem in interpretation than does the regular program. First of all, children do not attend as regularly and are under no sanctions to attend. The program also must be viewed as ancillary to the reading program available in the home schools. The program could be viewed as remedial or supplementary depending on the initial reading level of the participants. The results for most of the students are therefore somewhat less than expected. The only groups which made superior progress (third grade, 1.7 change) was composed of only eight students. The other students made either normal or slightly less than normal progress during this period, even though the program was an additional educational input.

The results therefore may be due to the lack of follow-up activities or to the relative independence of the Center's approach and that of the home school. No information is available to investigate these problems at this time, but they should be pursued in any further evaluation of the effects of the ERE process in After School Remediation efforts.

PART III

THE WAY IT IS—OR COULD BE

CHAPTER 8

CONCLUSIONS AND RECOMMENDATIONS

The spectacular in education is a rare matter, and even then doubtful. Breakthroughs are not heralded by trumpets. The Responsive Environment Program in its first full year of operation, represents solid accomplishment and completely verifiable progress. There are no razzle-dazzle statistics; nor have reportorial pyrotechnics been employed in this account.

The project stands on the worth of its work in exploring and demonstrating the validity of a new concept in educational methodology--the responsive environment process. This is the first large-scale application of the ERE process to an inner city pupil population in a major metropolis.

The Responsive Environment Program reflects enormous promise--in certain areas with certain populations. It is unrealistic to expect any program to be uniformly successful on all age and grade levels during its FIRST FULL YEAR OF OPERATION, particularly when there was no precedent for guidance. A large share of the programs energy had to grapple with problems of program development, staff recruitment, training, production techniques, scheduling and community relations.

This section of the Report is a recapitulation of the research and evaluation conducted by Teaching and Learning Research Corp.

First Grade

1. Are there differences between the experimental and control groups on post-test Word Knowledge as measured by the Metropolitan Achievement Tests?

   Yes. There were differences in favor of the experimental group indicating increased performance over that of the control group at the .0003 level of significance.

2. Are there differences between the experimental and control groups on post-test Word Discrimination as measured by the Metropolitan Achievement Tests?

   Yes. There were differences in favor of the experimental group. Although these differences were somewhat less than those on Word Knowledge, the increased level of achievement on this section of the test, was significant at the .05 level.

3. Are there differences between the experimental and control groups on post-test Sentence Reading?

   Yes. There were differences in favor of the experimental group indicated at the .0009 level of significance.

Although readiness scores, sex, number of absences were equalized for the experimental and control groups, in all cases the data indicated that higher post-test scores can be predicted for the experimental subjects than for the control subjects in the areas noted above.

In the predictions of first grade pupil success in reading in which reading scores alone are considered (ignoring differences in sex or number of absences) the following findings were apparent:

Word Knowledge - experimental group achieved higher level of performance over the control group (.0002 level of significance)

Word Discrimination - experimental group achieved higher level of performance over the control group (.05 level of significance)

Reading Sentences - experimental group achieved higher level of performance over the control group (.0008 level of significance)

It can be unequivocally stated that the Responsive Environment Program students outperformed the control students in Word Knowledge, Word Discrimination and Sentences at the end of the year's program. Of the three criteria, Word Discrimination performance was least affected. The effect of the program was apparent over and above differences in post-test performance attributable to sex, attendance and readiness.

Second Grade

There were no discernible differences between the experimental and control groups in Word Knowledge measured by the Metropolitan Achievement Test - Post.

There were no discernible differences between the experimental and control groups in Word Discrimination measured by the Metropolitan Achievement Test - Post.

There were no discernible differences between the experimental and control groups in Reading measured by the Metropolitan Achievement Test - Post.

Junior High School

Are there differences between the experimental and control groups on post-test Word Knowledge as measured by Metropolitan Achievement Test - Intermediate?

> There was a slight difference (one month) in favor of the experimental group. However, it must be considered that the pre-test scores indicated that the control group was one year and seven months ahead of the experimental group at the outset.

Are there differences between the experimental and control groups on post-test Reading Comprehension as measured by Metropolitan Achievement Test - Intermediate?

> Emphatically, yes. The experimental group showed a mean growth of one year and four months as a result of the nine-month exposure to the ERE as compared with slightly less than two months of growth for the control. This increase was even more significant in light of the fact that the experimental group began the school year reading a full two years (grade equivalent score) below the control group.

High School

Are there differences between the experimental and control groups on post-test Word Knowledge as measured by Metropolitan Achievement Test - Intermediate?

> There were no discernible differences in the growth in Word Knowledge between experimental and control groups.

Are there differences between the experimental and control groups on post-test Reading Comprehension as measured by Metropolitan Achievement Test - Intermediate?

> Decidedly yes. The experimental group's growth in Reading Comprehension was 1.74 times as great as that of the control group (nine-months growth vs. five months). This change is even more striking when one realizes that previously these students had grown one-half year for every year of their first nine years of schooling.

After-School Study Center

Are there significant differences between pre-test and post-test scores showing marked degrees of growth in Word Knowledge and Reading Comprehension for students attending the After-School Study Center on a voluntary basis?

Results as measured by standardized tests were inconclusive.

Adult Population (Functionally Illiterate and non-English Speaking Adults)

Are there significant differences between pre-test and post-test scores showing marked degrees of growth in Word Knowledge and Reading Comprehension for students attending the Adult Evening Classes on a voluntary basis?

Results as measured by standardized tests were inconclusive.

The results of the statistical analysis of the standardized tests indicate two major strengths of the REP process. The beginning reader, in most cases disadvantaged in prior language experiences, when exposed to the Responsive Environment, was able to overcome many of his deficiencies and conclude the school year at a reading level above the normative standards for the grade. Experiences of reading experts emphasize the need for success during this initial stage of formal learning if future learning is to be fruitful.

The second area of distinctive success of the REP was in the secondary school. Working with students severely retarded in reading achievement, the Center's process was able to help them progress in reading comprehension at a rate equal to the normative standard. This remediation is especially noteworthy if we consider the many social consequences deriving from severe reading retardation of the young adult. The Center's success with this group indicates that use of the REP process should be made available earlier in the public school's program of remediation in reading and language arts.

RECOMMENDATIONS

There are several questions which inevitably arise when a new approach or innovative process is evaluated. These questions relate to costs, to the distinctive part that innovation plays in the educational process, and the decision as to the group or classification of pupils with which this new process is most effective.

The issues raised in the evaluation section of this Report suggest several modifications of both the evaluation and demonstration phases of the Responsive Environment Program. The pragmatic requirements of coordinating activities in a large educational program have to be complemented by the requirements of a valid assessment procedure. While a program must proceed, it must proceed in such a way that experimental considerations are given equal priority with demonstration considerations.

Under ideal conditions, this would mean that the experimental and control populations to be served by the Responsive Environment Program Center should be identified prior to enrollment in any classes. This indentification of the client population is mandatory for appropriate determination of comparison samples.

Since the potential usefulness of the ERE methodology appears to lie in its influence on large populations, the client population in a demonstration research effort should be extensively sampled.

The Talking Typewriter appears to be very effective for young children, partly because of its particular motivational qualities in getting the children interested in language activities. It may, however, be an inefficient system of introducing speed of reading performance as well as advanced comprehension once the child has acquired the basic skill necessary for reading.

The magnitude of the transiency and mobility rate among pupils in the East New York section has led to severe attrition and replacement of students within the program during the course of the experimental effort.

While it is known that this movement is prevalent in nearly all low socio-economic groups, some effort should be made to select students who are likely to spend a full year at the same school. Even more desirable would be a school setting in which there is little mobility so that a longitudinal study directed toward an examination of the retention effects during grades two and three can be set up.

A constant source of discussion among the members of the research team and pedagogical staff stems from the inadequacy of the tests used in compiling the growth and achievement levels of the pupils. The use of test materials which attempt to measure comprehension to examine in students who cannot even recognize phonemes is patently unsound. On the other hand, it was necessary to use nationally standardized tests so that reliability and validity would not be questioned. Had the REP Center developed its own tests to ascertain growth in the de-coding aspect of reading there would have been no acceptable validity or reliability studies upon which professional educators could rely.

The public schools in large urban centers are no longer restricted to a 9 A.M. to 3 P.M. day or to a ten-month year. With after-school remediation centers and remedial programs during the summer, our schools are in constant use from early morning to late evening during the entire year. It would seem, therefore, that establishment costs of Responsive Environment Program Centers should be calculated in terms of mass clientele. The total impact and effect upon all segments of the community during a twelve-hour day and twelve-month year must be taken into account.

While it would seem that nearly all children could benefit from exposure to an autotelic Responsive Environment Process during the beginning stages of reading instruction, it is probable that there are some students who can derive even greater benefits from this experience. That the Responsive Environment Program Center in Brooklyn has contributed to the reading growth of many disadvantaged children in the East New York area, cannot be denied.

If the educational systems in large urban areas are moving in the direction of educational complexes or educational parks, it would seem that a service unit centrally located, serving six or seven surrounding schools could well minister to the reading needs, both initial and remedial, of pupils who do not appear to be profiting from the standard curriculum in use.

At the outset, there was no precedent from which the Responsive Environment Program Center could draw in experience, in the training of personnel, in the development of programs. Once again, New York City has taken the lead in examining an innovative approach to the teaching of disadvantaged children and adults. At this stage of the game, other large school systems throughout the country must turn to REP in New York City for guidance and assistance in introducing this system of educational technology on a scale large enough and broad enough to encompass the needs of entire communities.

APPENDIX A

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Student Evaluation Form	A2
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P.E.A.C.E. Notices	A6-8
Responsive Environments Corporation's Brief History of "Talking Typewriter"	A9-10
REP Organization Chart	A11

A1

Week of ______________

EVALUATION FORM - STUDENT

LABORATORY BOOTH EXPERIENCE

I. ATTENTION SPAN

A. Evidences of long attention span:
- (a) works steadily........................ | ......
- (b) does not demand attention........................ | ......
- (c) completes program........................ | ......

B. Evidences of short attention span:
- (a) fidgets........................ | ......
- (b) sleeps........................ | ......
- (c) yawns........................ | ......
- (d) makes noises........................ | ......
- (e) demands attention........................ | ......
- (f) looks around room........................ | ......
- (g) terminates session........................ | ......
- (h) delays responses........................ | ......
- (i) other........................ | ......

II WORK HABITS

A. Evidences of good work habits:
- (a) responds to instructions........................ | ......
  1. types requested keys........................ | ......
  2. reads aloud when indicated........................ | ......
  3. answers questions........................ | ......
  4. listens to rereading........................ | ......
- (b) works continuously........................ | ......
- (c) responds to new instructions and changes........................ | ......

B. Evidences of poor work habits:
- (a) fails to listen to narrator........................ | ......
- (b) fails to respond to instructions........................ | ......
- (c) fails to respond to questions........................ | ......
- (d) fails to read when directed........................ | ......
- (e) makes unnecessary random movements when typing........................ | ......

III ATTITUDES (indicate yes or no)

A. responds to booth assistants........................ | ......
B. appreciates value of the machine........................ | ......
C. responds patiently to difficulties with machine........................ | ......
D. accepts variety of program format........................ | ......
E. accepts changes in routine........................ | ......
F. evidences of friendly and cooperative behavior........................ | ......

IV PHYSICAL DISABILITIES: (List type of disability)

United Cerebral Palsy of New York City, inc.
C/P

Brownsville Developmental-Training Center
1555 Linden Boulevard, Brooklyn, N.Y. 11212
DI 2-4335
DI 2-6094

July 30, 1968

Dr. Israel
Responsive Environment Program
2560 Linden Boulevard
Brooklyn, N.Y.

Dear Dr. Israel:

Enclosed are the reports you requested from our teachers on their impressions of the effects of your program for our children and young adults with Cerebral Palsy. As you will read in the reports, the experience seemed to have been fruitful for those concerned.

I would personally like to thank you for permitting this experiment and hope we may be able to continue next term.

Please express our appreciation to Mrs. Litwin and your staff for being so generous of their time and for coping with the special needs of our youngsters.

Very truly yours,

Marilyn Orgel

(Mrs.) Marilyn Orgel, Supervisor
Brownsville Center

MO:sm
Enc. (2)

Evaluation of 'Talking Typewriter' Program for Students of Canarsie High School Annex

Four young women from the Canarsie High School Annex were involved in the 'Talking Typewriter Program' on a 4-day-a-week basis in conjunction with the remedial reading program they were involved with at the Annex. The students' ages ranged from 17-21, Verbal IQ from 60 - 88, reading levels from low 2nd grade to high 3rd, physical disabilities: cerebral palsy with various degrees of motor involvement (1 hemiplegia, 1 ataxic, 1 wheelchair bound). All had experienced certain amount of failure as readers, and were highly motivated to become better readers for reasons varying from increasing their own self-esteem to the connection they saw between reading competency and vocational success.

The student's response to the 'Talking Typewriter' program was extremely enthusiastic. The learning environment was excellent in terms of lack of distraction, multi-sensory stimulation, and responses and the small steps and repetition inherent in most of the programmed material. The mistake-proff characteristic of their work was important to their feeling of success, and the guarantee that most times they could rely on themselves to find the correct response instead of depending on a teacher was also important to their feeling of accomplishment. Another appeal of the program was its newness, the fascination of the machines themselves and the attractive environment. Responses to material varied. The Sullivan program was unsatisfactory in terms of slow rate of presentation whereas the Bank Street skills was much more enjoyable and successful. The high interest, low reading level stories were excellent for the students because of the opportunity it gave them to be readers and enjoy reading at their level.

Three of the students in the program read at a second grade level. Their problems in reading were low sight vocabulary, lack of knowledge of blends, making reversals and generally poor word attack skills. Through their reading program their sight vocabulary did increase and they have begun to master some of the rhyming techniques, and syllabication methods of figuring out new words. Although the 'Talking Typewriter' program was excellent for teaching sight vocabulary blends were less successful. The programs on blends did not provide the repetition they needed and it was found that color cuing was extremely important for these students in mastering these phonics skills. The third grade student also increased her sight vocabulary and made gains in spelling and ability to use context clues. One of the problems with the material available at the "Talking Typewriter" was that it is not necessarily geared to remediate the specific learning disabilities that the students had in auditory and visual sequencing that affected their reading and writing. Therefore, it could not always be used in conjunction with the remedial work being done in class.

Rae Edelson

'Talking Typewriter' Evaluation of children of the Brownsville Developmental Training Center.

Five children with Cerebral Palsy attended a two week session at the 'Talking typewriter' (One of the students had attended for 3½ months prior to the 2 week period). The children were considered to be mildly involved physically, were 7 to 9 years old and their mental ages were 2 - 4 years below their chronological ages. A variety of perceptual problems were also prevalent, i.e. inability to focus and figure ground disturbance. Each also exhibited a variety of behavioral manifestations such as problems in paying attention to learning material, listening and following directions.

The 'Talking Typewriter' seemed an excellent motivational tool for these children and provided them with a situation in which their full attention was gained. The machine also provided opportunities for the children to learn at their own pace without any outside distraction and provided continual opportunities for successful learning experiences.

Each of the children's attention span, focusing ability and willingness to sit and pay attention to directions improved. Some improvement was also seen in two of the children's ability to cope with their figure ground problem.

Educationally, gains were seen in some of the children's ability to recognize the alphabet and learning to recognize and spell words. The typewriter also aided one child in learning to print numbers, some to the capital letters and his name.

Martin Stone

PARENTS EDUCATIONAL ADVISORY COMMITTEE OF EAST NEW YORK
2560 Linden Boulevard, Brooklyn, N. Y. 11208
RESPONSIVE ENVIRONMENT PROGRAM
"TALKING TYPEWRITER"

March 26, 1968

Dear Parents:

The time has come to demonstrate our real feelings about the wonderful program that has been started in our community. There are two thoughts uppermost in our minds in this regard.

One: We must rally the entire community around this program, and demonstrate to the Board of Education and to the O.E.O. in Washington, D.C. that we are solidly behind the program.

Two: We must inform the O.E.O. in Washington, D. C. and the O.E.O. Regional Office that we have an important stake in this program (our children), and that it must be refunded for the fiscal year 1968-69 and the budget cuts restored!!

To achieve these goals several things must be done now:

A. We must recruit more residents in the community and get them committed to and involved in the active support of this program. (You can do this by joining the Parents Educational Advisory Committee of East New York) - (P.E.A.C.E.), if you have not already done so.)

B. We must urge all of our friends and neighbors to begin a "letter campaign" now, directed to:

1. Board of Education, N.Y.C.
2. Governor's Office
3. Senator Kennedy
4. Senator Javits
5. Congressman Brasco (Brooklyn)
6. Congressman Addabo (Queens)
7. O.E.O. Regional Office
8. O.E.O. Federal Office

(see attached list of addresses)

C. We must begin to solicit expressions of support, from all organizations in our communities, for this valuable and important program.

(continued)

D. We must begin to make our senatorial and congressional representatives aware of their responsibilities to this program. They must urge its continuation and support our petition for refunding by the O.E.O.

There is not much time to do everything that should be done so we urge you to act now. Get on a committee. Join P.E.A.C.E. Make your voices heard about how strongly you feel about this program.

The professional staff of the "Talking Typewriter" Program have done a great job with our children. We want them to continue. You must help by doing your part.

PLEASE ATTEND THE NEXT GENERAL MEETING OF P.E.A.C.E. ON APRIL 23, 1968, at 7:30 P.M. THE WRITE-IN AND OTHER PROBLEMS WILL BE DISCUSSED THEN. YOUR CHILD HAS BENEFITED FROM THIS PROGRAM. TO BE SURE OF THE CONTINUATION OF THESE BENEFITS, ATTEND THE MEETINGS - FIND OUT WHAT'S BEING DONE AND HOW YOU CAN HELP.

Sincerely,

The Executive Committee
of P.E.A.C.E.

PLEASE SEND YOUR PERSONAL LETTERS TO:

Dr. Bernard E. Donovan
Superintendent of Schools
City of New York
Board of Education
110 Livingston St.
Brooklyn, New York 11201

Honorable Nelson Rockefeller
Governor of the State of New York
State Capitol
Albany, New York

Honorable Robert F. Kennedy
United States Senator
Senate Office Building
Washington, D. C.

Honorable Jacob Javitz
United States Senator
Senate Office Building
Washington, D. C.

Congressman Frank Brasco
225 Broadway
New York, New York

Congressman Joseph Addabo
96-11 101 Avenue
Ozone Park, New York

Mr. Donald Elliot
Chairman
City Planning Commission
5 Lafayette St.,
New York, N. Y.

Mr. Robert J. Mangum
Director
Northeast Region, O.E.O.
40 East 41st Street
New York, N. Y. 10017

Mr. Theodore M. Berry
Director
Community Action Program
Office of Economic Opportunity
1200 19th St., N.W.
Washington, D. C. 20506

Mr. Abe Stark
Borough President
Borough of Brooklyn
Borough Hall,
Brooklyn, N. Y.

Mr. Mario Cariello
Borough President
Borough of Queens
Kew Gardens, N. Y.

Mayor John Lindsay
City Hall
New York, N. Y.

Mr. Porter Chandler
Board of Higher Education
535 East 80 St.
New York, N. Y.

THE "TALKING TYPEWRITER" OF RESPONSIVE ENVIRONMENTS CORPORATION
A BRIEF HISTORY OF DEVELOPMENT AND RESULTS*

1958, Dr. Omar Khayyam Moore begins basic research into the learning process, using the teaching of reading to normal, bright children as his research tool, based upon the methodology derived from the Office of Naval Research contract to study the process of human learning.

June, 1960, Dr. Moore and Mr. Richard Kobler start work on the "Talking Typewriter" project.

November, 1960, Hamden Hall Country Day School, Hamden, Connecticut--the first "Talking Typewriter" is developed for testing.

January, 1964, Freeport Public School System, Freeport, Long Island, New York--a controlled experiment using the Edison Responsive Environment Learning System to teach reading to kindergarten and mentally retarded children.

Spring, 1965, Institute for Development Studies, New York University, New York--begins a research project of the New York City Board of Education to provide five-year-olds with greater fluency in the alphabet.

February, 1964, Mary Imogene Bassett Hospital, Cooperstown, New York--a research program for the therapy of autistic and handicapped children and for normal children of various ages with specific reading disabilities.

June, 1965, Mount Vernon Children's Center, Mount Vernon, New York--a pre-kindergarten language development and reading program for four-year-olds, sponsored by the New York City Board of Education.

Fall, 1966, Project Breakthrough, Chicago, Illinois--a program for children (3½- 4 years old), many of whose parents are illiterate and are on relief. Students from local Head Start programs now are included in the Project, which features ten "Talking Typewriters."

November, 1966, Responsive Environment Research Centre, London, England--operated in conjunction with London University (Birkbeck College) and the National Society for the Mentally Handicapped. A program of treatment for educationally subnormal children from the Franklin D. Roosevelt School. Documented results indicate spectacular progress. Preliminary work now being undertaken with autistic children.

January, 1967, Responsive Environment Program Center, Brooklyn, New York, sponsored by the New York City Board of Education--the world's largest center of educational technology. Twenty "Talking Typewriters" are being used to impart reading skills to students from kindergarten through high school. Evening hours are reserved for adult illiterates.

January, 1967, Drexel Institute, Philadelphia, Pennsylvania--"Talking Typewriter" pilot program for pre-kindergarten children from low-income families to help them overcome the oppression of poverty, in a racially and economically integrated community.

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*A pamphlet produced by the Responsive Environments Corporation.

February, 1967, Palmer Park Elementary School, Landover, Maryland--a pilot reading program for beginners through adults.

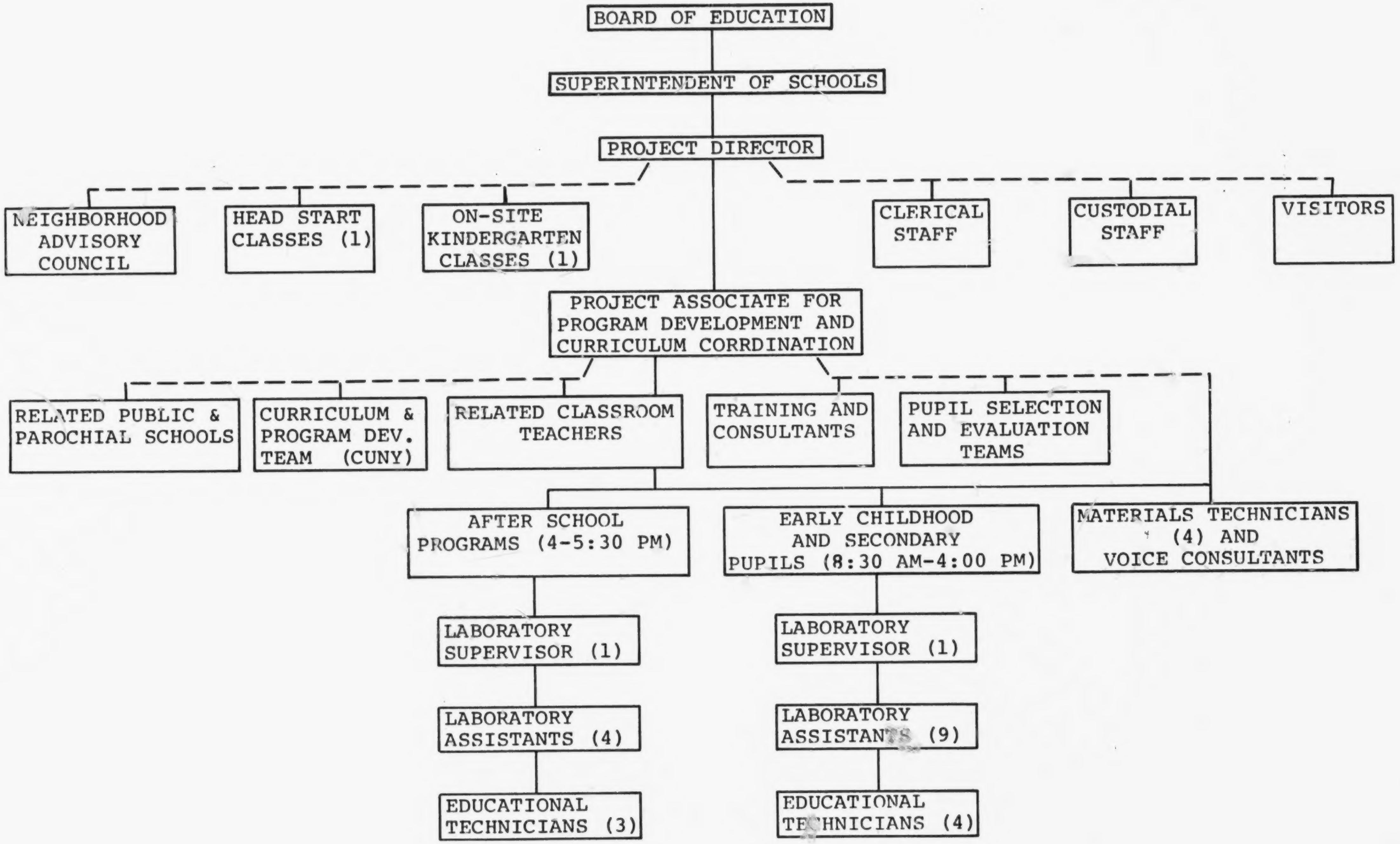
March, 1967, Chester School District, Chester, Pennsylvania--a remedial "Talking Typewriter" program for high school students whose reading skills are inadequate.

Spring, 1967, Army Education Centre, Corsham, Wiltshire, England--The British Army establishes a program to improve the reading skills of some of its soldiers.

Spring, 1967, New York State Department of Mental Hygiene--programs for the mentally retarded and brain damaged individuals and disturbed children in 10 State Schools and hospitals, using eighteen "Talking Typewriters."

May, 1967, S.B. 28, Garfield Junior High School, Berkeley, California--a remedial reading program for 7th, 8th and 9th graders. Garfield is the first school in California to employ computer based instruction in a regular, day-to-day program.

RESPONSIVE ENVIRONMENT PROGRAM
ORGANIZATION 1968-69


BOARD OF EDUCATION
SUPERINTENDENT OF SCHOOLS
PROJECT DIRECTOR
NEIGHBORHOOD ADVISORY COUNCIL
HEAD START CLASSES (1)
ON-SITE KINDERGARTEN CLASSES (1)
CLERICAL STAFF
CUSTODIAL STAFF
VISITORS
PROJECT ASSOCIATE FOR PROGRAM DEVELOPMENT AND CURRICULUM CORRDINATION
RELATED PUBLIC & PAROCHIAL SCHOOLS
CURRICULUM & PROGRAM DEV. TEAM (CUNY)
RELATED CLASSROOM TEACHERS
TRAINING AND CONSULTANTS
PUPIL SELECTION AND EVALUATION TEAMS
AFTER SCHOOL PROGRAMS (4-5:30 PM)
EARLY CHILDHOOD AND SECONDARY PUPILS (8:30 AM-4:00 PM)
MATERIALS TECHNICIANS (4) AND VOICE CONSULTANTS
LABORATORY SUPERVISOR (1)
LABORATORY ASSISTANTS (4)
EDUCATIONAL TECHNICIANS (3)
LABORATORY SUPERVISOR (1)
LABORATORY ASSISTANTS (9)
EDUCATIONAL TECHNICIANS (4)

APPENDIX B

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Letter to Parents B1

Parent Questionnaire B2

Parent Responses B3

Student School Questionnaire B4

Student REP Questionnaire B5

Teacher and Para-Professional Questionnaires B6-7

Self Concept of Reading B8-17

BOARD OF EDUCATION OF THE CITY OF NEW YORK
RESPONSIVE ENVIRONMENT PROGRAM
2560 LINDEN BOULEVARD BROOKLYN, N. Y. 11208
TELEPHONE; (212) 649-9595

BENJAMIN L. ISRAEL, PH. D.
DIRECTOR

May 20, 1968

Dear Parents:

The Government of the United States has sponsored the "Talking Typewriter" Program, and is now interested in finding out how much it has helped the children and adults in the East New York area.

We need your help! Your answers to this questionnaire will give us much valuation information. We can only get this information from parents of children who used the "Talking Typewriter," as well as adults who took part in this program.

Tell us your true feelings. You do not have to sign your name.

May we thank you for your cooperation.

Your truly,

Benjamin L. Israel, Ph.D.
Director,
Responsive Environment Program

BLI/ef

"THE TALKING TYPEWRITER"

PARENT QUESTIONNAIRE

PLEASE ANSWER THE FOLLOWING 20 QUESTIONS. PUT A CIRCLE AROUND THE "YES" OR "NO" ANSWER.

1. DO YOU KNOW WHAT YOUR CHILD IS DOING AT THE "TALKING TYPEWRITER" CENTER?
   YES NO
2. HAVE YOU SEEN THE TALKING TYPEWRITER?
   YES NO
3. ARE THE "TALKING TYPEWRITERS" HELPING YOUR CHILD?
   YES NO
4. IS YOUR CHILD READING MORE SINCE HE STARTED LEARNING AT THE TALKING TYPEWRITER CENTER?
   YES NO
5. HAS YOUR CHILD'S TEACHER SAID THAT YOUR CHILD'S READING IS IMPROVING?
   YES NO
6. DOES YOUR CHILD LIKE THE TALKING TYPEWRITER?
   YES NO
7. DOES YOUR CHILD BEHAVE ANY DIFFERENTLY SINCE HE STARTED GOING TO THE TALKING TYPEWRITER CENTER?
   YES NO
8. DO YOU FEEL THAT THE SCHOOLS ARE DOING A BETTER JOB WHEN THEY HAVE THINGS LIKE THE TALKING TYPEWRITER?
   YES NO
9. HAVE YOUR CHILDREN'S REPORT CARD GRADES IMPROVED SINCE THEY HAVE BEEN AT THE TALKING TYPEWRITER CENTER?
   YES NO
10. HAS YOUR CHILD BROUGHT HOME ANY WORK THAT HE HAS DONE AT THE TALKING TYPEWRITER CENTER?
    YES NO
11. DO YOU THINK THAT YOUR CHILD SHOULD HAVE MORE TIME AT THE TALKING TYPEWRITER CENTER?
    YES NO
12. DO YOU USE THE TALKING TYPEWRITER YOURSELF?
    YES NO
13. HAVE YOU EVER WISHED THAT YOU WERE USING THE TALKING TYPEWRITER?
    YES NO
14. WOULD YOU LIKE SOMEONE FROM THE TALKING TYPEWRITER CENTER TO TELL YOU ABOUT LESSONS FOR ADULTS?
    YES NO
15. WOULD YOU LIKE YOUR CHILD TO CONTINUE GOING TO THE TALKING TYPEWRITER CENTER?
    YES NO
16. DOES YOUR CHILD'S TEACHER THINK THAT THE TALKING TYPEWRITER WORKS WELL?
    YES NO
17. DO YOU WANT TO VISIT THE TALKING TYPEWRITER CENTER?
    YES NO
18. DO YOU WANT YOUR OTHER CHILDREN TO STUDY AT THE TALKING TYPEWRITER CENTER?
    YES NO
19. DO YOU THINK YOUR USING THE TALKING TYPEWRITER WOULD HELP YOU AT WORK?
    YES NO
20. DO YOU APPROVE OF THE TALKING TYPEWRITER CENTER?
    YES NO

PARENTAL ATTITUDE QUESTIONNAIRE

Frequency of Responses of the 84 Parents Reporting

Item	RESPONSES			
No.	YES	NO	BOTH	NEITHER
1	81	3	0	0
2	48	35	0	1
3	82	1	0	1
4	73	7	0	4
5	66	7	1	10
6	83	1	0	0
7	53	26	1	4
8	80	1	1	2
9	53	5	0	26 (No Report Cards)
10	82	1	0	1
11	68	12	0	4
12	7	75	0	2
13	62	22	0	0
14	48	29	0	7
15	79	3	0	2
16	76	1	0	7
17	66	9	0	9
18	72	4	0	8
19	50	24	0	10
20	83	0	0	1

Name ______________________ Class ________ School ____________

MY SCHOOL

We would like you to find out how you feel about your school. Here are some things that some boys and girls say about their school. Are these things true about your school? If they are very true for your school, circle the big "YES!" If they are pretty much true, but not so very true, circle the little "yes." If they are mostly not true but are a little true, circle the little "no." If they are not at all true, circle the big "NO!"

1.	The teachers in this school want to help you.	YES!	yes	no	NO!
2.	The teachers in this school expect you to work too hard.	YES!	yes	no	NO!
3.	The teachers in this school are really interested in you.	YES!	yes	no	NO!
4.	The teachers in this school know how to explain things clearly.	YES!	yes	no	NO!
5.	The teachers in this school are fair and square.	YES!	yes	no	NO!
6.	The boys and girls in this school fight too much.	YES!	yes	no	NO!
7.	This school building is a pleasant place.	YES!	yes	no	NO!
8.	The principal in this school is friendly.	YES!	yes	no	NO!
9.	The work at this school is too hard.	YES!	yes	no	NO!
10.	What I am learning will be useful to me.	YES!	yes	no	NO!
11.	The trip to and from school is too long.	YES!	yes	no	NO!
12.	I wish I didn't have to go to school at all.	YES!	yes	no	NO!
13.	This is the best school I know.	YES!	yes	no	NO!
14.	The work at this school is too easy.	YES!	yes	no	NO!
15.	I work hard in school but don't seem to get anywhere.	YES!	yes	no	NO!
16.	I've learned more this year than any earlier year.	YES!	yes	no	NO!

Name ______________________________ Class ________ School ______________

The Talking Typewriter Center

We would like to find out how you feel about the Talking Typewriter Center. Here are some things that some boys and girls say about their school. Are these things true about the Talking Typewriter Center? If they are very true for the Talking Typewriter Center, circle the big "YES!" If they are pretty much true, but not so very true, circle the little "yes." If they are mostly not true, but are a little true, circle the little "no." If they are not at all true, circle the big "NO!"

1.	The teachers at the Talking Typewriter Center want to help you.	YES!	yes	no	NO!
2.	The teachers at the Talking Typewriter Center expect you to work too hard.	YES!	yes	no	NO!
3.	The teachers at the Talking Typewriter Center are really interested in you.	YES!	yes	no	NO!
4.	The teachers at the Talking Typewriter Center know how to explain things clearly.	YES!	yes	no	NO!
5.	The teachers at the Talking Typewriter Center are fair and square.	YES!	yes	no	NO!
6.	The boys and girls at the Talking Typewriter Center fight too much.	YES!	yes	no	NO!
7.	The Talking Typewriter Center is a pleasant place.	YES!	yes	no	NO!
8.	The principal at the Talking Typewriter Center is friendly.	YES!	yes	no	NO!
9.	The work at the Talking Typewriter Center is too hard.	YES!	yes	no	NO!
10.	What I am learning will be useful to me.	YES!	yes	no	NO!
11.	The trip to and from the Talking Typewriter Center is too long.	YES!	yes	no	NO!
12.	I wish I didn't have to go to the Talking Typewriter Center at all.	YES!	yes	no	NO!
13.	This is the best place to learn that I know.	YES!	yes	no	NO!
14.	The work at the Talking Typewriter Center is too easy.	YES!	yes	no	NO!
15.	I work hard at the Talking Typewriter Center but don't seem to get anywhere.	YES!	yes	no	NO!
16.	I've learned more this year than any earlier year.	YES!	yes	no	NO!

The Teaching and Learning Research Corporation is engaged in an evaluation of the effectiveness of the Responsive Environment Program and needs your assistance.

The following questions concern you and the children who are taking part in the "Talking Typewriter" Project. In evaluating the project we would like to benefit from your insight and experience in working with these children. We would appreciate your candid response to the following:

1. Do you think that the project has helped the children academically?
    _____ Generally, it has helped the children.
    _____ In general, I cannot see that it has been of much help.
    _____ I do not feel that I have significant evidence to answer.

2. Do you think that the project has helped the children socially?
    _____ Generally, it has helped the children.
    _____ In general, I cannot see that it has been of much help.
    _____ I do not feel that I have significant evidence to answer.

3. Do you think that the project has helped the children emotionally?
    _____ Generally, it has helped the children.
    _____ In general, I cannot see that it has been of much help.
    _____ I do not feel that I have significant evidence to answer.

4. Have you noticed an increase in children's interst in outside reading?
    _____ Generally, it has helped the children.
    _____ In general, I cannot see that it has been of much help.
    _____ I do not feel that I have significant evidence to answer.

5. Do you see any indication of heightened interest of the children in their school subjects?
    _____ Generally, it has helped the children.
    _____ In general, I cannot see that it has been of much help.
    _____ I do not feel that I have significant evidence to answer.

6. Which, if any, of the academic subjects has benefited because of the children's participation in the project?
    ____

7. Does there seem to be any evidence of the student being more willing to attempt school work or intellectual tasks?
    Yes_____ No_____

8. Do you think that the children's participation in the project has resulted in a change in their definition of the "school" and what it is doing for them.
    Yes_____ No_____

9. Do the children seem to enjoy their experience at the Responsive Environment Center? Yes_____ No_____

10. Is there any evidence that the Responsive Environment personnel have developed good relationships with the children?
    Yes_____ No_____

11. Do you find that your children look forward to the trip to the Center? Yes_____ No_____

12. Do you see less absenteeism since the children commenced working at the Center? Yes_____ No_____

13. Do you believe that the Center staff is as capable as the teachers in your own school? Yes_____ No_____

14. Do you think that the one hour spent at the Center is more beneficial for your children than the same time spent in the regular reading program?
_____ Generally, it has helped the children.
_____ In general, I cannot see that it has been of much help.
_____ I do not feel that I have sufficient evidence to answer.

15. Do you find that the one hour spent at the Center is more beneficial for your children than the same time spent in a remedial reading situation?
_____ Generally, it has helped the children.
_____ In general, I cannot see that it has been of much help.
_____ I do not feel that I have sufficient evidence to answer.

16. Are you informed as to the scope and sequence of the Center's reading curriculum as you are about your own reading curriculum?
Yes_____ No_____

17. Are you as informed about the Center's curriculum as you are about the remedial reading program in the public school?
Yes_____ No_____

18. Are you able to coordinate and integrate the learning program at the Center with your own classroom program?
Yes_____ No_____

19. Do you find that the Center is emphasizing the same reading skills as you are in your program?
Yes_____ No_____

20. If the Center continues to operate next year would you want to continue your participation in it?
Yes_____ No_____

Spring, 1968

TEACHING AND LEARNING RESEARCH CORPORATION

New York City High School Study

INTRODUCTION:

The Teaching and Learning Research Corporation is doing a study to find out what high school students think about themselves, their school work and their future plans. We would like you to help in this part of the study by answering the following questions as honestly as you can. The information that you give us will be very useful and we thank you for your help.

Please read carefully the directions on each part of the questionnaire before you answer. If you have any questions, raise your hand and someone will help you.

The answers you give will not be shown to your teachers or anyone else, and will in no way affect your grades. No one will see the answers you give except the research staff.

Your help in this study is greatly appreciated.

PLEASE PRINT THE FOLLOWING INFORMATION

Name: ______________________________ (Last Name) ______________ (First Name) ______________ (Middle Name)

Birthdate: ______________________ Sex: M ______ F ______

Name of Present School: ______________________________

What School Did You Attend Last Year? ______________________________

DO NOT TURN THE PAGE UNTIL YOU ARE TOLD TO DO SO

Spring 1968

Circle the letter in front of the statement which best answers each question.

1. How do you rate yourself in school ability compared with your close friends?

    a. I am the best
    b. I am above average
    c. I am average
    d. I am below average
    e. I am the poorest

2. How do you rate yourself in school ability compared with those in your class at school?

    a. I am among the best
    b. I am about average
    c. I am average
    d. I am below average
    e. I am among the poorest

3. Where do you think you would rank in your high school graduating class?

    a. Among the best
    b. Above average
    c. Average
    d. Below average
    e. Among the poorest

4. Do you think you have the ability to complete college?

    a. Yes. definitely
    b. Yes. probably
    c. Not sure, either way
    d. Probably not
    e. No

5. Where do you think you would rank in your class in college?

    a. Among the best
    b. Above average
    c. Average
    d. Below average
    e. Among the poorest

6. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think it is that you could complete such advanced work?

    a. Very likely
    b. Somewhat likely
    c. Not sure, either way
    d. Unlikely
    e. Most unlikely

Go on to next page.

7. Forget for a moment how others grade your work. In your own opinion how good do you think your work is?

    a. My work is excellent
    b. My work is good
    c. My work is average
    d. My work is below average
    e. My work is much below average

8. What kind of grades do you think you are capable of getting?

    a. Mostly 90 - 100
    b. Mostly 80 - 85
    c. Mostly 70 - 75
    d. Mostly 65
    e. Mostly below 65

9. How important to you are the grades you get in school?

    a. Very important
    b. Important
    c. Not particularly important
    d. Grades don't matter to me at all

10. How do you feel if you don't do as well in school as you know you can?

    a. Feel very badly
    b. Feel badly
    c. Don't feel particularly badly
    d. Doesn't both me at all

11. How important is it to you to do better than others in school?

    a. Very important
    b. Important
    c. Not particularly important
    d. Doesn't matter to me at all

12. Which statement describes you best?

    a. I like to get better grades than everyone else.
    b. I like to get better grades than almost everyone else.
    c. I like to get about the same grades as everyone else.
    d. I don't care about any particular grades.

13. Do you think you have the ability to become a much better reader?

    a. Yes, definitely
    b. Somewhat likely
    c. Not sure, either way
    d. Probably not
    e. No

Go on to next page.

14. Compared with your close friends, how would you rate your reading ability?

    a. I am the best
    b. I am above average
    c. I am average
    d. I am below average
    e. I am the poorest

15. Forget for a moment how others view your reading ability. In your own opinion how good of a reader do you think you are?

    a. Excellent
    b. Good
    c. Average
    d. Below average
    e. Much below average

16. Is your reading ability good enough to allow you to complete your reading assignments on time?

    a. Yes, with time left over
    b. Always
    c. Usually
    d. Sometimes
    e. Never

17. Do you think you have the ability to learn to read well enough to go on to college?

    a. Yes, definitely
    b. Somewhat likely
    c. Not sure, either way
    d. Probably not
    e. No

18. If you were to be graded on your reading ability, what kind of grades do you think you are capable of getting?

    a. Mostly 90 - 100
    b. Mostly 80 - 85
    c. Mostly 70 - 75
    d. Mostly 65
    e. Mostly Below 65

19. Do you think you will be able to read well enough to obtain mostly A's and B's by the end of your senior year?

    a. Very likely
    b. Somewhat likely
    c. Not sure. either way
    d. Unlikely
    e. Most unlikely

Go on to next page.

20. If you were free to go as far as you wanted to go in school, how far would you like to go?

    a. I'd like to quit right now.
    b. I'd like to continue in high school for a while.
    c. I'd like to graduate from high school.
    d. I'd like to go to secretarial or trade school.
    e. I'd like to go to college for a while.
    f. I'd like to graduate from college.
    g. I'd like to do graduate work beyond college.

21. Sometimes what we would like to do isn't the same as what we expect to do. How far in school do you expect you really will go?

    a. I think I really will quit school as soon as I can.
    b. I think I really will continue in high school for a while.
    c. I think I really will graduate from high school.
    d. I think I really will go to secretarial or trade school.
    e. I think I really will go to college for a while.
    f. I think I really will graduate from college.
    g. I think I really will do graduate work beyond college.

Please write in answers to the following questions.

22.-23. If you were free to choose any job you wanted, what job would you most like to have when you grow up?

____

24.-25. Sometimes what we would like to do is not the same as what we expect to do. What kind of a job do you expect you really will have when you grow up?

____

Go on to next page.

Please answer the following questions as you think your PARENTS would answer them. If you are not living with your parents answer for the family with whom you are living.

Circle the letter in front of the statement that best answers each question.

26. How do you think your PARENTS would rate your school ability compared with other students your age?

    a. Among the best
    b. Above average
    c. Average
    d. Below average
    e. Among the poorest

27. Where do you think your PARENTS would say you would rank in your high school graduating class?

    a. Among the best
    b. Above average
    c. Average
    d. Below average
    e. Among the poorest

28. Do you think that your PARENTS would say you have the ability to complete college?

    a. Yes, definitely
    b. Yes, probably
    c. Not sure, either way
    d. Probably not
    e. Definitely not

29. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think your PARENTS would say it is that you could complete such advanced work?

    a. Very likely
    b. Somewhat likely
    c. Not sure, either way
    d. Somewhat unlikely
    e. Very unlikely

30. What kind of grades do you think your PARENTS would say you are capable of getting in general?

    a. Mostly 90 - 100
    b. Mostly 80 - 85
    c. Mostly 70 - 75
    d. Mostly 65
    e. Mostly Below 65

Go on to next page.

31. How far do you think your PARENTS expect you to go in school?

    a. They expect me to quit as soon as I can.
    b. They expect me to continue in high school for a while.
    c. They expect me to graduate from high school.
    d. They expect me to go to secretarial or trade school.
    e. They expect me to go to college for a while.
    f. They expect me to graduate from college.
    g. They expect me to do graduate work beyond college.

32. For your PARENTS to be most pleased with you, what kind of grades should you get in school in general?

    a. Mostly 90 - 100
    b. Mostly 80 - 85
    c. Mostly 70 - 75
    d. Mostly 65
    e. Mostly Below 65

33. How well informed are your PARENTS about what you are doing in school work? Choose the statement which comes closest to describing your parents.

    a. They are extremely well informed. They pay very close attention to what I am doing in my school work. Regularly I or others keep them informed. No matter how well or how poorly I am doing they will find out.

    b. They are well informed. They know quite a bit about what and how well I am doing. They generally know what and how well I am doing, but they don't always know.

    c. They are fairly well informed. Occasionally they ask and once in a while I or someone else tells them what I am doing.

    d. They are only slightly informed. They pay very little attention to what I am doing. Seldom do I or does anyone else tell them.

    e. They know nothing about what or how well I am doing in my school work.

Go on to next page.

Spring 1968

Think about your closest friend at school. Now answer the following questions as you think this FRIEND would answer them.

Circle the letter in front of the statement that best answers each question.

34. How do you think this FRIEND would rate your school ability compared with other students your age?

    a. Among the best
    b. Above average
    c. Average
    d. Below average
    e. Among the poorest

35. Where do you think this FRIEND would say you would rank in your high school graduating class?

    a. Among the best
    b. Above average
    c. Average
    d. Below average
    e. Among the poorest

36. Do you think that this FRIEND would say you have the ability to complete college?

    a. Yes, definitely
    b. Yes, probably
    c. Not sure, either way
    d. Probably not
    e. Definitely not

37. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think this FRIEND would say it is that you could complete such advanced work?

    a. Very likely
    b. Somewhat likely
    c. Not sure, either way
    d. Somewhat unlikely
    e. Very unlikely

38. What kind of grades do you think this FRIEND would say you are capable of getting in general?

    a. Mostly 90 - 100
    b. Mostly 80 - 85
    c. Mostly 70 - 75
    d. Mostly 65
    e. Mostly Below 65

Go on to next page.

Think about your favorite teacher--the one you like the best; the one you feel is most concerned about your schoolwork. Now answer the following questions as you think this TEACHER would answer them.

Circle the letter in front of the statement which best answers each question.

39. How do you think this TEACHER would rate your school ability compared with other students your age?

    a. Among the best
    b. Above average
    c. Average
    d. Below average
    e. Among the poorest

40. Where do you think this TEACHER would say you would rank in your high school graduating class?

    a. Among the best
    b. Above average
    c. Average
    d. Below average
    e. Among the poorest

41. Do you think this TEACHER would say you have the ability to complete college?

    a. Yes, definitely
    b. Yes, probably
    c. Not sure, either way
    d. Probably not
    e. Definitely not

42. In order to become a doctor, lawyer, or university professor, work beyond four years of college is necessary. How likely do you think this TEACHER would say it is that you could complete such advanced work?

    a. Very likely
    b. Somewhat likely
    c. Not sure, either way
    d. Somewhat unlikely
    e. Very unlikely

Go on to next page.

43. What kind of grades do you think this TEACHER would say you are capable of getting in general?

a. Mostly 90 - 100
b. Mostly 80 - 85
c. Mostly 70 - 75
d. Mostly 65
e. Mostly Below 65

APPENDIX C

Page

REP Participation Certificates C1

Program Cards C2-7

Guide to Programs C8-27

Coding Form for Program Writer and Encoder C28

Reinforcement Materials C29-37

Slide Requisition Form C38

Program Evaluation Forms C39-40

Program Request Form C41

RESPONSIVE ENVIRONMENT PROGRAM
"THE TALKING TYPEWRITER"

Board of Education of the City of New York
2560 Linden Boulevard
BROOKLYN, NEW YORK

This Certificate is Awarded to

____

FOR ACTIVE PARTICIPATION

DURING THE SCHOOL YEAR

____________________ ____________________
Date *Director*

© GOES 747.

LITHO IN U.S.A.

Many teenagers go to the Village on weekends.

On Broadway there are shows.

At Lincoln Center you can hear many kinds of music.

At the Cheetah you can hear folk-rock and soul music.

museum painting animals

international problems

visit building elevator

1. painting 2. planet 3. peace

1. elevator 2. museum 3. folk

TITLE ERIC CARD NO.

DATE OF ORIGIN: ______ ORIGINATOR: ______ USED IN PROJECT:

POINTER BAND NO. ______ LANGUAGE CHANNEL NO. ______ PROJECTOR MAGAZINE NO.

KEYBOARD NO ______ MISC. ______

Spacemen

A spaceship fell.
It fell into two boats.
Two men came out of the water.
They opened the spaceship.
Then the spacemen came out
and went into the boat.
The end. By Beverly

TITLE ______________________ E|R|E **CARD NO**
DATE OF ORIGIN: ________ ORIGINATOR: ________ USED IN PROJECT: ________
POINTER BAND NO. ________ LANGUAGE CHANNEL NO. ________ PROJECTOR MAGAZINE NO. ________
KEYBOARD NO. ________ MISC. ________
NO. 300418

JOE WEBB REPAIR MECHANIC

The first thing I must do is find out the damage.

I need the section behind the rear door .

It is easier to replace it with a new part.

You need the right tools for a particular job.

I earn $120 dollars a week .

TLE ______ E|R|E CARD NO.

ATE OF ORIGIN: ______ ORIGINATOR: ______ USED IN PROJECT: ______

DINTER BAND NO. ______ LANGUAGE CHANNEL NO. ______ PROJECTOR MAGAZINE NO. ______

EYBOARD NO. ______ MISC. ______

NO. 300418

hide hiding sit sitting
running bigger getting
eat glad fun him trick bag

just jill jumped
____ was sitting in a tree.
____ looked in the yard.
____ went to the store.
She's playing tricks today.
She's playing tricks today.
Jill was ________ in the tree.
Did you go to school ______?
____ I sit there?
My dog likes to do ______.

ITLE ____________________ E | R | E CARD NO
ATE OF ORIGIN: ________ ORIGINATOR: ____________ USED IN PROJECT: ________
OINTER BAND NO. ________ LANGUAGE CHANNEL NO. ________ PROJECTOR MAGAZINE NO. ________
EYBOARD NO. ________ MISC. ____________________
NO. 300418

They wanted to play.
"She's outside," said Jill's
mother. "She's not far away."
They couldn't find Jill.

"She may be there," Henry said.
"She likes to hide," Rose said.
"She likes to play tricks.
They looked in the big tree.
"She's hiding from us! said
Henry. "She's playing a trick"

TLE ________ E|R|E EDISON RESPONSIVE ENVIRONMENT CARD NO.
E OF ORIGIN: ________ ORIGINATOR: ________ USED IN PROJECT: ________
NTER BAND NO. ________ LANGUAGE CHANNEL NO. ________ PROJECTOR MAGAZINE NO. ________
BOARD NO. ________ MISC. ________
NO. 300418

car cat

The cat went up the street.

She was looking for milk.

The cat ran up to the man.

"Scat, cat! SCAT"

Then the cat saw a dog.

The cat ran up to the woman

"Scat, cat! SCAT!"

"Here, cat, here!"

"Come into my house."

"Will you be my cat?"

ITLE ________ E|R|E CARD NO.

EDISON RESPONSIVE ENVIRONMENT

ATE OF ORIGIN: ________ ORIGINATOR: ________ USED IN PROJECT: ________

OINTER BAND NO. ________ LANGUAGE CHANNEL NO. ________ PROJECTOR MAGAZINE NO. ________

YBOARD NO. ________ MISC. ________

NO. 300418

Guide to Programs

Programs

Pages

R Reading Skills 1,2
T Literature 3,4
P High Interest 5,6,7
G Vocabulary Building 8,9
B
BSS Bank Street 10,11
V Vista 12,13
S Sullivan 14
HSWR High School Word Rec. 15,16,17
Expandable Keyboard 18

Reading Skills R1-99

Sub-groups
a) Alphabet
(b) Analysis of words
c) [illegible] and Comprehension
d) Recall
e) Words ① general
② Dolch 99.+ etc

★ Indicates not in lab
} Indicates to be used in sequence

	ERE	Code#	
a	109	R1	strel
	472, 473	R2	a b c
	474	R3	a b c
	476	R4	a b c
	B209	R5	a b c
b	165	R6	Basketball (compound words)
	164	R7	Young Willie Mays
	243	R8	Giant Dodger Game '62
	287	R9	Althea Gibson
	163	R10	Jackie ends batting slump (er, est endings)
	342	R11	Bill Russell goes to College
c	246	R12	Music Context Clues
	284	R13	Comp.
	367	R14	" " "
	363	R15	" " "
	365	R16	" " "
★	366	R17	" " "
	338	R18	Airplane Factory (verbs)
	314	R19	Dressmaking (subjects)
	341	R20	Neighborhood
	370	R21	"
	371	R22	Details in ¶
	372	R23	context clues
	241	R24	Jackie Becomes a Brooklyn Dodger
	737	R25	Model Cars
	479	R26	Bob Cousy
	571	R27	Syllabication
	495	R28	Mickey Mantle's 500th Home Run
	492	R28.1	" " Plays 1st Base

Reading Skills (continued) R

	ERE	Code#		
d	51	R29	Word Drill HS	5 copies
	127	R30	Chuck Quits Football H.S.	5 copies
	128	R31	Sec'y	
	432	R32	¶ Reading	
	433	R33	Dictation	
	467	R34	Sec'y Cards	
	468	R35		
	469	R36	Letter Writing (Dear Josephine)	
	470	R37	Sight-recall-Election	
	475A	R38	¶ Reading with comp.	
	475	R39		
e	120	R40	It	
①	120A	R40		
	481	R41	Fantastic 8th Man	
	482	R42	I am a little girl	
	483	R43	You live in the city	
	484	R44	David has a dump truck	
	473	R45	it is	
	486	R46	Batman	
	562	R47	Reading is fun	
	471	R49	Spelling Words	
	103	R50	Word Drill	
	67	R51	Isolated Words	
②	567	R99.1		back has so to saw here stop come much they did must up fall not we go play were
Dolch sight Vocab.	568	R99.2		
	582	R99.3	Follows 1 + 2 Tic-tac-toe game	
	588	R99.4		
	589	R99.5		
	640	R99.6	Follows 4 + 5 Crossword puzzle	
	655	R99.7		
	656	R99.8		
	720	R99.9	Scrambled sentences using right word.	

T 100-199

ERE	CODE#	Literature	Primary
4	T100	Curious George	
6	T101	Andy + the Lions	
14	T102	Space float	
15	T103	Whistle For Willie	
16	T104	Snowy Day	
21	T105	Toms Umbrella	
33	T106	Hop on Pop	
34	T107	" "	
50	T108	Green Eyes	
54	T109	Good Night Moon	2 copies
66	T110	Smart Little Boy	
106	T111	3 Dogs at a Party	
108	T112	Go, Dog, Go	
117	T113	George + the Balloons	2 copies
130	T114	A Fly Went By	
254	T115	Big Red Bus	
151	T116	Ask Mr. Bear	
	T117		
31	T118	Where the Wild Things Are	
317	T119	Red Light, Green Light	
575	T120	Put Me in the Zoo	
566	T121	The Zoo	
573	T122	Green Eggs + Ham	
574	T123	The Happy Owls	
729	T124	Make Way for Ducklings	
576	T125	Vocab. II V21 + V22 [illegible]	
581	T126	Vocab II. V7 + V8 [illegible]	

T200-299

Literature (continued) Secondary

ERE	CODE #	
326	T200	Stopping By the Woods on a Snowy Eve.
327	T201	Poems - Japanese Sanscrit

High Interest P200-299

Elementary (Ind)

a)

ERE	CODE #	
1	P200	4 Girls
2	P201	Boy + Girl
3	P202	Space Story
5	P203	A Rainy Day
7	P204	Going to the Store
8	P205	Playing
9	P206	Debbie
10	P207	A Girl
12	P209	Wilbert's Story
13	P210	Playing
17	P211	The Rug
18	P212	Watching TV
19	P213	Stephen's Story
20	P214	Space Man
22	P215	Two Girls
23	P216	Easter Bunny
25	P217	Playing
26	P218	Victoria's Story
27	P219	Lost Boy
28	P220	City Chu.
29	P221	Playing
30	P222	A Walk
32	P223	School Story
36	P224	Birthday Party
37	P225	One Rainy Day
38	P226	David
★ 39	P227	
40	P228	Shopping
41	P229	Funny Story
★ 42	P230	To the Store
43	P231	My House
44	P232	The Movies
45	P233	Windows
47	P234	A Nice Day
49	P235	Spacemen
57	P236	3 Bears
58	P237	Mommy Cooks
59	P238	The Girl
61	P239	a party
79	P240	a Story
136	P241	Girls Play

P

High Interest (Continued)

Elem Exp - General / Personal

	EKE	CODE#		
b)	339	P243	Superman	
	356	P244	Batman	
*	410	P245	I go to the Dentist	
	46	P246	Blast-Off	*
	55	P247	Space-Bat	*
	105	P248	The Flintstones	*
	112	P249	Near the Airport	
	506	P250	Clouds	
	119	P251	Staten Island Zoo	
	265	P252	The Nice Lady	
c)	24	P253	Child at Typewriter	
	52	P254	School Closed	
	53	P257		
	68	P259		
	60	P258	A Snow Ball	
	77	P260	Snowed-In	
	113	P263	Snow	
	114	P264	Snow	
	75	P255	Audrey Alexander	
		P256		
	78	P261	Boy at Typewriter	
	104	P262	Girl at Typewriter	

P

Secondary
General
Personal
PC Creative

High Interest (continued)

	ERE	CODE#	
d)	64	P265a	Supremes Ceaser
	445	P265b	"
	72	P266	Music Word Drill easy Bongos Trumpets with music
	76	P267	" " "
	48	P268	Satellites of the Earth
	322	P269	Business for Everyone Banking
*	189	P270	Fashion
	63	P271	Clay (fighter)
	65	P272	Pro-Basketball a + b
	115	P273	Bowling
	69	P274	H.S. Questionaire
	325	P277	Job Interview
	658	P278a	My Puerto Rico part I
	659	P278b	My Puerto Rico part II
	480	P279a	Wilma Rudolph - Track Star
	478	P279b	Wilma Wins Three Olympic Gold Medals
	583	P280a P280b	Girl Diver Part I Part II
	744 Boy 743 Girl	P281B P281G	A Play "Julie" - Girl's part Boy part
e)	350	P275	About Alvin
	111	P276	Michael
f)	653	PC300	Problem Teacher
mposition	654	PC301	Old-Fashioned Parents
	565	PC302	If I Had a Million Dollars
	657	PC303	The Empty Apartment
	700	PC304	The Greatest Sandwich
	507	PC305	The Party
	704	PC306	Things I Want
	706	PC307	My Sister's New Bracelet
	707	PC308	A Love Story Johnnie, Walter, Clarence, Henri, Alfred, Maurice
	708	PC309	After the Party " " "
	710	PC310	Jimmy + His Father
	709	PC311	My Family
	705	PC312	The New Girl

G300-399

Vocabulary Building

71	G300	Vocab List for Policemen
328	G301	Driver's General Manual(s) G301a 731 G301b
346	G302	Trip to NYC
351	G303	Subway Systems
352	G304	Supermarket
441	G305	Motorcycles
353	G306	Post Office
442	G307	Becoming a Beautician
443	G308	Auto Accidents
444	G309	Job Auto Mechanic
	G310	
446	G311	Tropical Fish
447	G312	"
448	G313	"
449	G314	After 20 Years
450	G315	Chef
451	G316	Charlie White-Artist
452	G317	Billy Williams (Baseball)
453	G318	Trouble Shooting (Cars)
454	G319	Steve Goldberg words in other words salesman on houses, an accident
455	G320	Policeman Artist
456	G321	Judo
457	G322	A Marine's Longest Night
458	G323	" " "
459	G324	The Iron Worker On High
460	G325	Violet Baker's Problem
461	G326	The Leopard
466	G327	Barbara Green's Problem
572	G331	Airline Hostess
569	G332	Wrestling
570	G333a	Snake charmer er endings
638	G333b	Charlie, the Traffic Cop
639	G333c	Test for 333a + 333b
741	G334	

G

	ERE	CODE*	Vocabulary Building (continued)	
inn	563	G328	From My Little Red Story Book	
	564	G329	" " " " " "	
SF	584	SF 1	Bingo & Fluff	Pre-Primer
Scott Foresman	739	SF 2		
	641	SF 3	"	
	702	SF 8		
	713	SF 9		
	703	SF10		
	[illegible]	SF11		
	[illegible]	SF12		
	[illegible]	SF13		
	733	SF14		
Primer	736	SF 101	Vocab I	Primer

Bank Street Programs

Pre-Primers	B101	In the City	One City	Vista Cards (P. P) 1,2,3,4
	B102		People	
	B102A	Review 1+2	Review	
	B103		Go	
	B104		Boys + Girls	
	B104A		Review	
	B105		Night	Bank Street Skills BSS 101 ↓ 114
	B106	People Read	People Read	
	B107		Good Morning	
	B108		Who Are They?	
	B109		Annie's Mother	
	B110		Some Day	
	B111		Fire!	
	B112		Ben + the Birds	
Primer	B201	Around the City	All Around the City	Vista Programs 5-50
	B202		A Hot Day	
	B203		Who Likes Ice Cream	
	B204		Come + Jump	
	B205		Will Ben Get a Ride?	
	B206		After School	
	B207		Fire Drill	
	B208		The Day It Rained!	Bank Street Skills BSS 201 ↓ 215
	B209		The ABC	
	B210		The Big Box	
	B211		Scat, Cat!	
	B212		One, Two, Three, Go!	
	B213		The New Lunch Boxes	
	B214		And He Did!	
	B215		Lunch On a Boat	
	B216		Jerry + the [illegible]	
	B217		City Horses	
	B218		The New Girl	
	B219		The Big Snow	
	B220		Pete [illegible] a [illegible]!	
	B221		City Policeman	
	B222		[illegible]	
	B223		[illegible] Boat	

Bank Street Programs (continued)

First Reader

B301	Uptown	Too Little	
B302		The Cunning Dog	
B303		No One Is Up But Me	Bank
B304		The Donkey + the Dog	Street
B305		New Boy in Class	
B306		What Do You Think	Skills
B307		City Walls	
B308		Home	BSS
B309		Mr. Charles	301
B310		Someone Silly	
B311		Red, The Police Horse	↓
B312		Food for the City	
B313		Old Woman + 7 Cats	315
B314	Downtown	Mr. Nobody	
B315		Big Store + Little Store	
B316		Danny + Ken	
B317		Can't Skate Carlo	
B318		Dog Barked at Midnight	
B319		Glad Girl + Mad Girl	
B320		A Good Place to Hide	
B321		One Green Tree	
B322		Birthday Parade	
B323		Fast Red Taxi	
B324		No Fighting!	
B325		Cat + Tagle	
B326		Ken + His Magic Tricks	
B327		People	
B328		The Look Alike Horses	
B329		Linda's Lunch	
B330		Where Did That Kite Go?	
B331		City Mouse + Country Mouse	
B332		Magic Doors	
B332a		Review	

Vista Programs V

ERE	Codett		
35	V1	P.P. Lesson	work people
107	V2	" "	In The City
259	V3	" "	School
269	V4	" "	Stores
237	V5	Primer Lesson 1	gown around town
153	V6	2	step hot cool steps pot pool cot tool
155	V7	3	like dog likes to bike log too mike jog two
157	V8	4	jump fun me bump sun her dump run you
152	V9	5	get from ride bet pet
261	V10	5a Skill Lesson	slow fast his looks rides her
203	V11	6 "	after with what T.V. my friends
494	V12	7	drill little big ring
503	V13	7a	talk then now (haunted not rooms house)
355	V14	7S Skill Lesson	ring big little
499	V15	8	Carmen rained could (The Flashing went still Game)
491	V16	8a	
502	V17	8b	milk wet did
288	V18	8s	boy fishing in a boat
500	V19	9	Ben can look like fire
290	V20	9s	About Books
501	V21	10	said train (square wheeled train)
489	V22	10a	jumped let's boat (about a pirate) plane was
496	V23	11	looking scat bird cat
498	V24	11a	Ben the cat one said purr are family
497	V25	12	Mat Ken raining (Ghost street help Story)
331	V26	12a	Story about children having a race
245	V27	13	one box new this two boxes old that
149	V28	13a	little girl plays teacher
148	V29	14	Henry Tony help there
158	V30	14a	myself time skates drive
150	V31	15	boats them money chickens pulled
145	V32	15a	dogs turned liked thank feel
244	V33	16	doing always walked when don't

[illegible] ★

Vista (continued) V

ERE	Code#		
238	V34	Primer Lesson 16a	am that sister four
239	V35	17	workmen way day old company
240	V36	17a	worked higher newest stopped more tore
274	V37	19	Rosa line so were I'm
276	V38	19s	Story about Rosa
281	V39	20	snowed make snowman round
275	V40	20a	snowplow where bigg pushed sidewalk days
305	V41	20A	Snowed snowman Rosa Ken
306	V42	20B	It snowed, snow, slowl snowman
280	V43	21	Pete ball himself wanted
279	V44	21A	Victor grandfather him policeman
285	V45	22	slowly policeman police
313	V46	22A	calls races highways
289	V47	22S	I am friend you
278	V48	23	potato five, six bag potatoes seven rolled
307	V49	24	tugboat itself sea turn pulled
277	V50	24s	Henry the Tugboat

Sullivan Programs

Book I Lessons 1-32 S101 → S132	
Book II Lessons 1-16 S201 → S216 (first half a book)	SP201 (3rd quarter of book) SP202 (4th quarter of book)
Book III Lessons 1-16 S301 → 316 (1st half of bk)	SP301 3rd quarter of book) SP302 (4th quarter of book
Book IV Lessons 1-8 S401 → S408 (1st quarter of book)	SP401 (2nd quarter of book) SP402 (3rd quarter of book) SP403 (4th quarter of book)
Book V S501-508	SP501 SP502 SP503
Book VI S601-608	SP601 SP602 SP603
Book VII S701-708	SP701 SP702 SP703
Book VIII S801-808	SP801 (2nd quarter of book) SP802 SP803

HSWR

H.S. Word Recognition Programs

ERE	CODE			
206	HSWR 1 I-1	Unit I Lesson	1	æ
207	HSWR 2 I-2		2	b b
208	HSWR 3 I-3		3	d d
209	HSWR 4 I-4		4	f f
210	HSWR 5 I-5		5	g g
211	HSWR 6 I-6		6	ha
212	HSWR 7 I-7		7	dʒ
213	HSWR 8 I-8		8	l
205	HSWR 9 I Unit 1-8	Unit Card	1-8	b→l (except c+k)
214	HSWR 10 I-9		9	m m
215	HSWR 11 I-10		10	n n
216	HSWR 12 I-11		11	pa ap
217	HSWR 13 I-12		12	r
218	HSWR 14 I-13		13	s
219	HSWR 15 I-14		14	ta at
220	HSWR 16 I-15		15	va
221	HSWR 17 I (Unit 9-15)	Unit Card	9-15	(m n p r s t v)
222	HSWR 18 I-16		16	w
223	HSWR 19 I-17		17	y
224	HSWR 20 I-18		18	z
162	HSWR 21 I (Unit 16-18)	Unit Card	16-18	
226	HSWR 22 II-1	Unit II Lesson	1	e
227	HSWR 23 II-2		2	I
228	HSWR 24 II-3		3	ə
229	HSWR 25 II-4		4	ʊ
225	HSWR 26 II (Unit 1-4)	Unit Card	1-4	
159	HSWR 27 III unit	Unit III Lesson 1 and 2 Unit Card (ck)		
144-1	HSWR 28 II-1	Unit IV Lesson	1	final mp
144-2	HSWR 29 IV-2		2	nt
144-3	HSWR 30 IV-3		3	nd
144-4	HSWR 31 IV-4		4	ft
144-5	HSWR 32 IV-5		5	st

HSWR

HSWR Programs (continued)

ERE	CODE#			
333	HSWR 33 IV-6		6	lk, lb, lf
332	HSWR 34 IV-7		7	lt
231	HSWR 35 V-1	Unit V Lesson	1	ch ch
232	HSWR 36 V-2		2	ch sh
230	HSWR 37 V (Unit 1-2)	Unit Card 1-2		ch-ch-sh-sh
357	HSWR 38 V-3		3	qu
358	HSWR 39 V-4		4	th
359	HSWR 40 V-5		5	wh
233	HSWR 41 VI-1	Unit VI Lesson	1	bl
336	HSWR 42 VI-2		2	cl
234	HSWR 43 VI-3		3	fl
161	HSWR 44 VI-4		4	gl
235	HSWR 45 VI-5		5	pl
154	HSWR 46 VI-6		6	sl
236	HSWR 47 VI-7		7	sc, sk
146	HSWR 48 VI-8		8	sm
141	HSWR 49 VI-9		9	sn
147	HSWR 50 VI-10		10	sp
142	HSWR 51 VI-11		11	st
143	HSWR 52 VI-12		12	sw
271	HSWR 53 VI-13		13	br
272	HSWR 54 VI-14		14	cr
273	HSWR 56 VI-15		15	dr

HSWR

HSWR Programs (continued)

ERE	CODE#			
294	HSWR [illegible] VI - 16	Lesson	16	fr
295	HSWR 57 VI - 17		17	gr
296	HSWR 58 VI - 18		18	pr
368	HSWR 59 VI - 19		19	tr
369	HSWR 60 VI - 20A		20A	tw
		Unit VII		
249	HSWR 61 VIII - 1	Unit VIII Lesson	1	Long vowels a
250	HSWR 62 VIII - 2		2	e
251	HSWR 63 VIII - 3		3	i
252	HSWR 64 VIII - 4		4	o
253	HSWR [illegible] VIII - 5		5	
242	HSWR [illegible] VIII (Unit 1,2)	Unit Card a,e		
242A	HSWR [illegible] VIII (Unit 3,4,5)	Unit Card i,o,u		
256	HSWR [illegible] IX 1,2	Unit IX Lessons	1,2	ai ay
257	HSWR [illegible] IX 3,4		3,4	ee ea
			5,6	
258	HSWR 70 IX 7,8,9		7,8,9	oa oe ow

Expandable Keyboard

ERE			
590		Lesson 1	
591		2	mop
592		3	"
593		4	"
594		5	"
595		6	"
596		7	"
597		8	"
598		9	"
*		10	
		11	"
*		12	
602		13	mop
*		14	
604		15	smop
56	RR1	Color Program (Recall)	
	RR2	Picture Program (Recall animals)	
	RR3	Catagorization	
* 765	RR4	Colors + Letters	

TITLE____________________

ERE CARD #________

LINE #________

SET SLIDE ON #________

CARD FACE

MACHINE AND TYPEWRITER CODES

							CR (cu)

CARD VOICE

1

2

3

4

5

6

7

8

SPECIAL INSTRUCTIONS:

SLIDES:

#____ ______________ #____ ______________

#____ ______________ #____ ______________

#____ ______________ #____ ______________

REC ENCODING CHART

MICKEY MANTLE PLAYS FIRST BASE
(ERE CARD , LINES 1-15)

Name ____________________________ Date ____________________________

DIRECTIONS: BELOW IS THE STORY YOU READ IN THE BOOTH. READ THE STORY CAREFULLY.

MICKEY MANTLE PLAYS FIRST BASE

Sentence 1 Mickey was a great Yankee star.
2 He was a great outfielder.
3 He could run, catch and throw.
4 His hits won many ball games.
5 In his first year as a Yankee, Mickey fell and injured his leg.
6 Mickey bravely continued to play baseball for the Yankees.
7 Sixteen years later, his painful legs kept him from running fast.
8 But the Yankees needed his hits.
9 Since he could catch and throw, Mickey became a first base-man.

PART I READING FOR DETAILS

DIRECTIONS: ANSWER THE FOLLOWING QUESTIONS BY DRAWING A LINE UNDER THE RIGHT WORD OR WORDS. THEN PUT THE NUMBER OF THE SENTENCE IN THE BLANK WHICH PROVES YOUR ANSWER.

1. When Mickey came to the Yankees, he played ____________________.
   first base   the outfield   shortstop   Sentence __
2. He won many ball games with his ______________.
   catches   runs   hits   Sentence __
3. Mickey injured his ______________.
   hand   arm   leg   Sentence __
4. Mickey was injured when he __________________.
   fell   hit   ran   Sentence __
5. In this story, Mickey is ____________________.
   unhappy   brave   not injured   Sentence __
6. After __________________ years, Mickey no longer could run fast.
   six   sixteen   seventeen   Sentence __

MICKEY MANTLE PLAYS FIRST BASE

page 2

7. The Yankees needed Mickey's ___________.　　Sentence ___

hits　　running　　throws

8. At the end of the story, Mickey became a _________________ .

pitcher　　first base-man　　shortstop　　Sentence ___

PART II　WHEN DID IT HAPPEN?

DIRECTIONS: READ THE FIVE SENTENCES BELOW. FIND THE SENTENCE THAT TELLS WHAT HAPPENED FIRST AND PUT A 1 BEFORE IT. PUT A 2 BEFORE THE SENTENCE THAT TELLS WHAT HAPPENED NEXT. FINISH IN THE SAME WAY.

_____ Mickey became a first base-man.
_____ Mickey fell and injured his leg.
_____ He was a great outfielder.
_____ He continued to play baseball.
_____ He could run, catch and throw.

PART III　WORD MEANING

DIRECTIONS: FIND THE WORD FROM THE LIST BELOW TO MATCH EACH MEANING. WRITE THE CORRECT WORD IN THE BLANK AFTER EACH MEANING.

star
bravely
injured
painful
sixteen
outfielder
baseball

1. to hurt, to do damage to ________________________
2. a famous athlete, or famous person ________________
3. six more than ten ________________________
4. a player that plays the outfield ________________
5. a game played with a bat and ball ________________
6. without fear, having courage ________________
7. hurting, causing pain, unpleasant ________________

TURN TO PAGE 3 TO CORRECT YOUR ANSWERS

SCORE __________

MICKEY MANTLE PLAYS FIRST BASE
page 3

ANSWERS

DIRECTIONS: CORRECT YOUR WORK USING THE ANSWERS GIVEN BELOW. PLACE AN X NEXT TO WRONG ANSWERS.

PART I READING FOR DETAILS

1.	the outfield	Sentence 2
2.	hits	Sentence 4
3.	leg	Sentence 5
4.	fell	Sentence 5
5.	brave	Sentence 6
6.	sixteen	Sentence 7
7.	hits	Sentence 8
8.	first base-man	Sentence 9

PART II WHEN DID IT HAPPEN?

__5__ Mickey became a first base-man
__3__ Mickey fell and injured his leg.
__1__ He was a great outfielder.
__4__ He continued to play baseball.
__2__ He could run, catch and throw.

PART III WORD MEANING

1. injured
2. star
3. sixteen
4. outfielder
5. baseball
6. bravely
7. painful

THINGS YOU MAY WANT TO DO:

1. Make a picture about this story. You might want to give your picture to your teacher for possible use in a story.

2. Read more baseball stories.

3. In a few words, write or tell about the things you like about Mickey Mantle.

ALTHEA LEARNS TO PLAY TENNIS (ERE CARD 287, LINES 1-12 OR 1-15)

Name______________________________ Date______________________________

DIRECTIONS: BELOW IS THE STORY YOU READ IN THE BOOTH. READ THE STORY CAREFULLY.

ALTHEA LEARNS TO PLAY TENNIS

Sentence 1 Althea lived in New York City.
2 She didn't like to go to school.
3 She'd play stickball, baseball, basketball and paddle tennis.
4 She was good in paddle tennis.
5 A man saw Althea playing.
6 He bought her a tennis racket.
7 She could now learn real tennis.
8 Althea learned to hit the ball.
9 But, she needed tennis lessons.
10 She got free lessons at a club.
11 Soon, she was playing in matches.

PART I SKIMMING AND READING FOR DETAILS

DIRECTIONS: LOOK AT THE STORY ALTHEA LEARNS TO PLAY TENNIS TO FIND THE ANSWERS TO THESE QUESTIONS. WRITE THE ANSWERS IN YOUR OWN WORDS IN THE BLANKS. THEN BESIDE EACH ANSWER WRITE THE NUMBER OF THE SENTENCE IN WHICH YOU FOUND YOUR ANSWER.

1. What was Althea good at?____________
   ______________________________________ Sentence ____

2. Where did Althea live?______________ Sentence ____
   ____

3. Who saw Althea playing?_____________ Sentence ____
   ____

4. What games did Althea play?_________ Sentence ____
   ____

5. How did Althea get a tennis racket? Sentence ____
   ____

6. Where did Althea get free tennis lessons? Sentence ____
   ____
   ____

ALTHEA LEARNS TO PLAY TENNIS

7. What did Althea learn to hit? ____________ Sentence ___
____

8. What could Althea learn after she got a tennis racket? ____________________ Sentence ___
____

9. After Althea got free lessons, what did she play in? ____________________ Sentence ___
____

PART II WORD MEANING

DIRECTIONS: WRITE THE CORRECT WORD FROM THE LIST BELOW TO COMPLETE THE FOLLOWING SENTENCES.

1. The boys played a game with a stick and a ball. They were playing ____________________ .
2. John ____________________ like to go to school.
3. You need a wooden paddle and a rubber ball to play ______________________________ .
4. John took music ____________________ .
5. The game of ______________________ is played on a court with a racket and ball.
6. The boxer was getting ready for a boxing ____________ .
7. John went to the store. He __________________ some candy.
8. Althea was good in tennis. __________________ win most of her matches.

match
lessons
didn't
She'd

bought
tennis
stickball
paddle tennis

TURN TO PAGE 3 TO CORRECT YOUR ANSWERS

SCORE ______

ALTHEA LEARNS TO PLAY TENNIS

page 3

ANSWERS

DIRECTIONS: CORRECT YOUR WORK USING THE ANSWERS GIVEN BELOW. PLACE AN X NEXT TO WRONG ANSWERS.

PART I SKIMMING AND READING FOR DETAILS

1.	She was good in paddle tennis.	Sentence 4
2.	Althea lived in New York City.	Sentence 1
3.	A man saw Althea playing.	Sentence 5
4.	Althea played stickball, baseball, basketball and paddle tennis. (You might also include tennis.)	Sentence 3
5.	A man bought Althea a tennis racket.	Sentence 6
6.	Althea got free lessons at a club.	Sentence 10
7.	Althea learned to hit a tennis ball.	Sentence 8
8.	She could learn to play tennis.	Sentence 7
9.	Althea played in matches.	Sentence 11

PART II WORD MEANING

1. stickball
2. didn't
3. paddle tennis
4. lessons
5. tennis
6. match
7. bought
8. She'd

THINGS YOU MAY WANT TO DO:

1. Make a picture about this story. You might want to give this picture to your teacher.for possible use in a story.

2. In the story "ALTHEA LEARNS TO PLAY TENNIS" you learned a few things about Althea. Write a few words about some of the things you liked about Althea.

BILL RUSSELL GOES TO COLLEGE
(ERE CARD 342, LINES 1-13 or 1-15)

Name ______________________ Date ______________________

DIRECTIONS: BELOW IS THE STORY YOU READ IN THE BOOTH. READ THE STORY CAREFULLY.

BILL RUSSELL GOES TO COLLEGE

Sentence 1 Bill was born in the South.
2 Then his family moved West.
3 There they lived in a project.
4 Bill learned to play basketball.
5 His brother was good in sports.
6 But Bill couldn't even make the home room basketball team.
7 Some teachers helped Bill.
8 Soon Bill made the JayVee team.
9 A scout saw Bill play in a game.
10 The scout wanted Bill to play on his college basketball team.
11 Bill was able to go to college.

PART I READING FOR DETAILS

DIRECTIONS: ANSWER THESE QUESTIONS BY DRAWING A LINE UNDER THE RIGHT WORD OR WORDS. THEN PUT THE NUMBER OF THE SENTENCE FROM THE STORY BILL RUSSELL GOES TO COLLEGE WHICH PROVES YOUR ANSWER.

1. Where was Bill born?
   in the East in the West in the South Sentence __
2. Who helped Bill?
   some boys his brother some teachers Sentence ___
3. What team did Bill make?
   the JayVee team the football team the baseball team Sentence ___
4. Where did Bill's family move to?
   the East the West the South Sentence ___
5. What did Bill live in?
   a house a project a trailer Sentence ___
6. What was Bill's brother good in?
   school work art sports Sentence ___

7. In this story, who saw Bill play in a game?
a teacher   a coach   a scout   Sentence ___

8. What sport will Bill play in college?
basketball   baseball   football   Sentence ___

PART II WHEN DID IT HAPPEN?

DIRECTIONS: READ THE FIVE SENTENCES BELOW. FIND THE SENTENCE THAT TELLS WHAT HAPPENED FIRST AND PUT A 1 BEFORE IT. PUT A 2 BEFORE THE SENTENCE THAT TELLS WHAT HAPPENED NEXT. FINISH IN THE SAME WAY.

____ Bill's family moves.
____ Bill makes the JayVees.
____ Bill is born.
____ Bill goes to college.
____ Bill couldn't make the home room basketball team.

PART III WORD MEANING

DIRECTIONS: FIND THE WORD FROM THE LIST BELOW TO MATCH EACH MEANING. WRITE THE CORRECT WORD IN THE BLANK AFTER EACH MEANING.

the South
move
projects
scout
sports

1. a group of buildings in which families live ______________________

2. a part of the U. S. ______________________

3. to go from one place to another ______________________

4. games such as basketball and baseball ______________________

5. a man that looks or searches ______________________

TURN TO PAGE 3 TO CORRECT YOUR ANSWERS

SCORE_______

BILL RUSSELL GOES TO COLLEGE

page 3

ANSWERS

DIRECTIONS: CORRECT YOUR WORK USING THE ANSWERS GIVEN BELOW. PLACE AN X NEXT TO WRONG ANSWERS.

PART I READING FOR DETAILS

1.	in the South	Sentence 1
2.	some teachers	Sentence 7
3.	the JayVee team	Sentence 8
4.	the West	Sentence 2
5.	a project	Sentence 3
6.	sports	Sentence 5
7.	a scout	Sentence 9
8.	basketball	Sentence 10

PART II WHEN DID IT HAPPEN?

2 Bill's family moves.
4 Bill makes the JayVees.
1 Bill is born.
5 Bill goes to college.
3 Bill couldn't make the home room basketball team.

PART III WORD MEANING

1. projects
2. the South
3. move
4. sports
5. scout

THINGS YOU MAY WANT TO DO!

1. Make a picture about this story. You might want to give this picture to your teacher for possible use in a story.
2. Read more stories about basketball.
3. Write or tell a story about a basketball game you saw or played in.

SLIDES

Title:____________________ Pages:______ ERE-Card #_____ Complete.__________

_____Photographs_____Duplicates____Title Slides

Sent:______Received:_____No. of Sets:___________

N.B.

Dup. #	Dup. #
1 Line #	10 Line #
2 Line #	11 Line #
3 Line #	12 Line #
4 Line #	13 Line #
5 Line #	14 Line #
6 Line #	15 Line #
7 Line #	16 Line #
8 Line #	17 Line #
9 Line #	18 Line #

PROGRAM EVALUATION

NAME OF PROGRAM ______________________ DATE ______________
NUMBER __________ EVALUATOR ______________

	Achieved Yes	 No
I. Objective:		
a) Skill lesson		
b) Vocabulary lesson		
c) Motivational lesson		

Comment:

II. Motivation:	Yes	No
a) suited to age or grade level		
b) has "spark"		
c) sustained throughout program		

Comment:

III.. Development:	Yes	No
a) pacing - too rapid		
too slow		
b) length of program		
(1) appropriate to accomplish objectives		
(2) appropriate for attention span of pupil		
c) content		
(1) appropriate to age level		
(2) appropriate for program		

Comment:

IV. Voice:	Good	Poor
a) quality		
b) pacing		
c) appropriate for program		

Comment:

PROGRAM EVALUATION

(Page 2)

Achieved
Yes | No

V. Pictorials and/or slides:
- a) appropriate for age and program
- b) number adequate for program
- c) coordinates well with program
- d) quality: (1) sketchy
  - (2) unclear

Comment:

Check Where Appropriate

VI. Errors:
- a) spelling
- b) grammar
- c) punctuation
- d) speech
- e) slides
- f) coordination
- g) content

Comment:

VII. Format:
- a) Program techniques - indicate effective techniques:

VIII. Rating:
- 0
- 1
- 2
- 3
- 4
- 5

VX. Recommendation:

Yes | No

- discard completely
- change in part
- keep in entirety

X. Comments and Suggestions:

PROGRAM REQUEST

Requested by: ______________________________ Date: ______________

- -

SUBJECT

- -

For Students

Reading Level ______________

- -

Request Approved by: ______________________ Date: ______________

COMMENTS

To Be Written by: ____

Accepted for Writing ______________________ Date: ______________
(signature of writer)

Writing Approved by: ______________________ Date: ______________

- -

COMMENTS

Prog. Chart	Evaluation	Encoded	Voice	Pictures	Verified	Filed with Lab. Supv.

VISITOR'S PACKET

LETTER

THE BIG BOX THAT TEACHES

QUESTIONS AND ANSWERS

RESPONSIVE ENVIRONMENT

These materials, in brochure form, are presented to visitors to the Responsive Environment Program Center.

BOARD OF EDUCATION OF THE CITY OF NEW YORK
RESPONSIVE ENVIRONMENT PROGRAM
2560 LINDEN BOULEVARD BROOKLYN, N. Y. 11208
TELEPHONE; (212) 649-9595

BENJAMIN L. ISRAEL, PH. D.
DIRECTOR

Ladies and Gentlemen:

Since our "Opening Day" we have had, literally, thousands of visitors to our Center. Many of our local universities have taken advantage of their proximity to the largest Center employing the latest in educational technology by scheduling group visits for graduate students and prospective teachers. The following questions are representative of many put to us at our briefing sessions. We hope you find this material informative.

Q: WHAT IS A "RESPONSIVE ENVIRONMENT"?

A: O. K. Moore who conceptualized the Responsive Environment process or system, defines it as an environment which meets the following conditions:

(1) It permits the learner to explore freely.
(2) It informs the learner immediately about the consequences of his actions.
(3) It is self-pacing, i.e., events happen within the environment at a rate determined by the learner.
(4) It permits the learner to make full use of his capacity for discovering relations of various kinds.
(5) Its structure is such that the learner is likely to make a series of interconnected discoveries about the physical, cultural or social world.

Q: WHY WAS THE "TALKING TYPEWRITER" CENTER LOCATED IN A COMMERCIAL BUILDING IN THE EAST NEW YORK NEIGHBORHOOD, RATHER THAN A SCHOOL?

A: This particular Office of Economic Opportunity funded Demonstration Project was established to validate the efficacy of the E.R.E. Process in meeting the reading and learning needs of various segments of the school, teen-age and adult populations often classified as "educationally disadvantaged." In addition to operating well into the evening for our adult programs, the use of a commercial building enabled us to create an atmosphere--a climate--which was new - different - exciting. Teen-agers and adults could not associate this type of program offered at the Center with previous "failures" in school settings or situations.

Q: WHAT IS THE PHYSICAL LAYOUT OF THE LABORATORY?

A: An area of approximately 10,000 square feet, half of which is occupied by the Laboratory; the balance by rather unusual (by ordinary standards!!) "reinforcement or related classrooms,"

"THE TALKING TYPEWRITER"

a pre-kindergarten room, conference room, program preparation rooms and offices for clerical staff.

Around the perimeter of the Laboratory area there are 18 soundproof "Talking Typewriter" booths. These are equipped with "one-way glass" and monitored by Educational Learning Assistants (para-professionals). Laboratory operation is supervised by licensed pedagogic personnel. Educational decisions (i.e., program selection, reinforcement activities, etc.) are made by the Laboratory Supervisor (professional staff).

Q: HOW WERE PARTICIPATING SCHOOLS, CLASSES AND CHILDREN SELECTED?

A: With the logistics of transportation in mind, five schools within a ten-minute bus ride (with the exception of Thomas Jefferson High School--which is 15 minutes) were selected by the District Superintendent and the Director. Kindergarten classes, first grade, seventh-eighth grade (Intermediate School) and tenth-eleventh (High School) were then selected and matched; comparable control classes were designated. The entire class attends the sessions at the Center daily. Time allotment per class--just under one hour--i.e., 20 minutes at "Talking Typewriter"; 20-25 minutes in "reinforcement" classroom; 15-20 minutes--transportation, dressing, changes of groups, programs, slide carriers, etc. ("slippage").

The students selected from the secondary schools (Intermediate School and High School) were from two to six years behind in reading achievement as determined by standardized "pre-exposure" reading test scores.

Q: HOW MANY CLIENTS RECEIVE THE BENEFIT OF THE SERVICES AT THE RESPONSIVE ENVIRONMENT PROGRAM CENTER DURING THE COURSE OF AN AVERAGE DAY?

A: Three First-Grade Classes
Two Second-Grade Classes
One Intermediate School Class — 8:45 A.M.
One High School Class — to
One Kindergarten Class — 3:00 P.M.
One Pre-Kindergarten Class

After School Remedial Groups (Voluntary and Referrals)
For elementary school children - 5 Sessions from 3:00 P.M. - 5:00 P.M. Daily.
For teen-agers and functionally illiterate adults - 4 Sessions from 5:00 P.M. - 7:00 P.M. Daily.

Q: HOW DOES THE "TALKING TYPEWRITER" WORK?

A: A special electric typewriter with jumbo-sized type, audio components (speaker, magnetic recorder), an exhibitor (on which typed or printed words appear) and automatic projection unit (for pictorial presentations of such words as "DOG") are tied together by a compact, special-purpose computer to instantly provide the primary sensory responses (audio, visual, tactile) to the student.

These components, in combination with a simple programming system are housed in a soundproof, air-conditioned booth. They create a "responsive environment."

The computerized typewriter allows its user to explore freely. It has infinite patience. There are no punishments when a wrong key is punched. There is no competition. It has inflexible logic. It never varies. It never, never makes a mistake.

The machine consists of a computer about the size of a small, upright piano with a typewriter keyboard in front. It has a speaker and a frame above the typewriter for printed matter.

The first thing a child does is press one of the standard typewriter keys. This prints the character in large type. At the same time, a soft voice automatically identifies it through the speaker.

The computer can be programmed vocally and visually, or both together. When a letter is selected by a recorded voice, all the remaining keys are locked. The machine waits indefinitely while the child punches away until the right key is hit before it calls automatically for the next one.

Then letters lead to words and words to sentences. Sentences lead to stories.

Q: WHAT OR WHO IS A PARA-PROFESSIONAL? WHAT ROLE DOES SHE HAVE IN THE RESPONSIVE ENVIRONMENT PROGRAM?

A: Our para-professionals are women from the local community whom we have trained in the skills necessary for the operation of the "Talking Typewriters." Educational Learning Assistants "monitor" the children who are in the booths; they handle program cards, operate the "Talking Typewriter," maintain pupil records and observe and report the students' actions and progress to the laboratory supervisor at regularly scheduled staff conferences. Educational Materials Technicians encode original program materials prepared by writers and programers; these are then correlated with appropriate visual materials, checked by the laboratory supervisor and, when approved, are ready for use at the typewriters.

In addition, we employ the service of ten Educational Equipment Technicians. These para-professionals, under the direction of the Curriculum Development Coordinator and the regular classroom teacher, work in the related or "reinforcement" classroom with educational aids, tape recorders, language masters, overhead projectors as well as other games and activities designed to reinforce learnings based upon the days "print out" from the "Talking Typewriter" session.

All of the para-professionals have a high school diploma or equivalency certificate.

Q: HOW CAN THE EFFORTS AT THE RESPONSIVE ENVIRONMENT PROGRAM CENTER BE CONSIDERED "INDIVIDUALIZED INSTRUCTION"?

A: Based upon preliminary achievement testing (M.A.T.), diagnostic testing (Kg.-Peabody; Roswell - Chall, I.R.I.; Dolch lists, Sullivan Placement) and evaluation as well as the teacher's professional judgment, each student receives (or is "plugged into") an E.R.E. Program series which has been designed for the level at which he can function successfully. Adjustments are made at the "Talking Typewriter" to meet particular needs, i.e., auditory or visual deficiencies, length of attention span, etc. The use of diverse media (auditory-visual) as needed and in combination virtually insures maximum pupil involvement and interaction.

Q: WHAT IS THE "SUCCESS PRINCIPLE" OFTEN REFERRED TO IN THE LITERATURE AS IT RELATES TO THE E.R.E. PROCESS?

A: When students are in the programed card phase of the "Talking Typewriter" program it is impossible for them to commit an error. The pupil who has met with repeated failures in the school setting has performed (with assistance) in a manner which has resulted in a perfectly executed lesson. Through repeated efforts and trials, at his own pace, he has, by "self-discovery" had a successful experience. This then serves as further motivation to complete the program so that he may go on with the next one in the series. Many of the basic principles of Contigency Management as applied to an educational objective or goal are also integral parts of our programing efforts.

Q: WHAT ABOUT "SOFTWARE"? THIS HAS BEEN KNOWN TO BE A HANG-UP IN MANY A "SUCCESSFUL" PROGRAM.

A: At the outset, there was no precedent for an undertaking of the scope and magnitude of the Responsive Environment Program Center in Brooklyn. One of Dr. Donovan's main objectives in accepting the Office of Economic Opportunity funded program was to determine whether a large urban school system could utilize this kind of educational technology in the face of the many problems our school system constantly encounters. At present we have 600+ programs. These include the BANK STREET Series, The SULLIVAN Materials, dozens of high interest (low ability) level stories, vocational and "hobby oriented" stories as well as specially designed and developed remedial materials for children and adults. New and original programs are being added to our program library with each passing week. The software problem is not completely licked--but we're getting there.

Q: DO YOU HAVE ANY RESULTS, STATISTICAL OR OTHERWISE, BASED UPON THE PROGRAM'S OPERATION FROM JANUARY 1967 to JUNE 1967?

A: Indeed, we do. Some of these show significant gains in the experimental groups; others, discernible or appreciable differences but not necessarily statistically significant ones. All of this material is currently in the hands of the Office of Economic Opportunity and the Superintendent of Schools. These results should be released to the public within a very short time.

The Reading Newsreport

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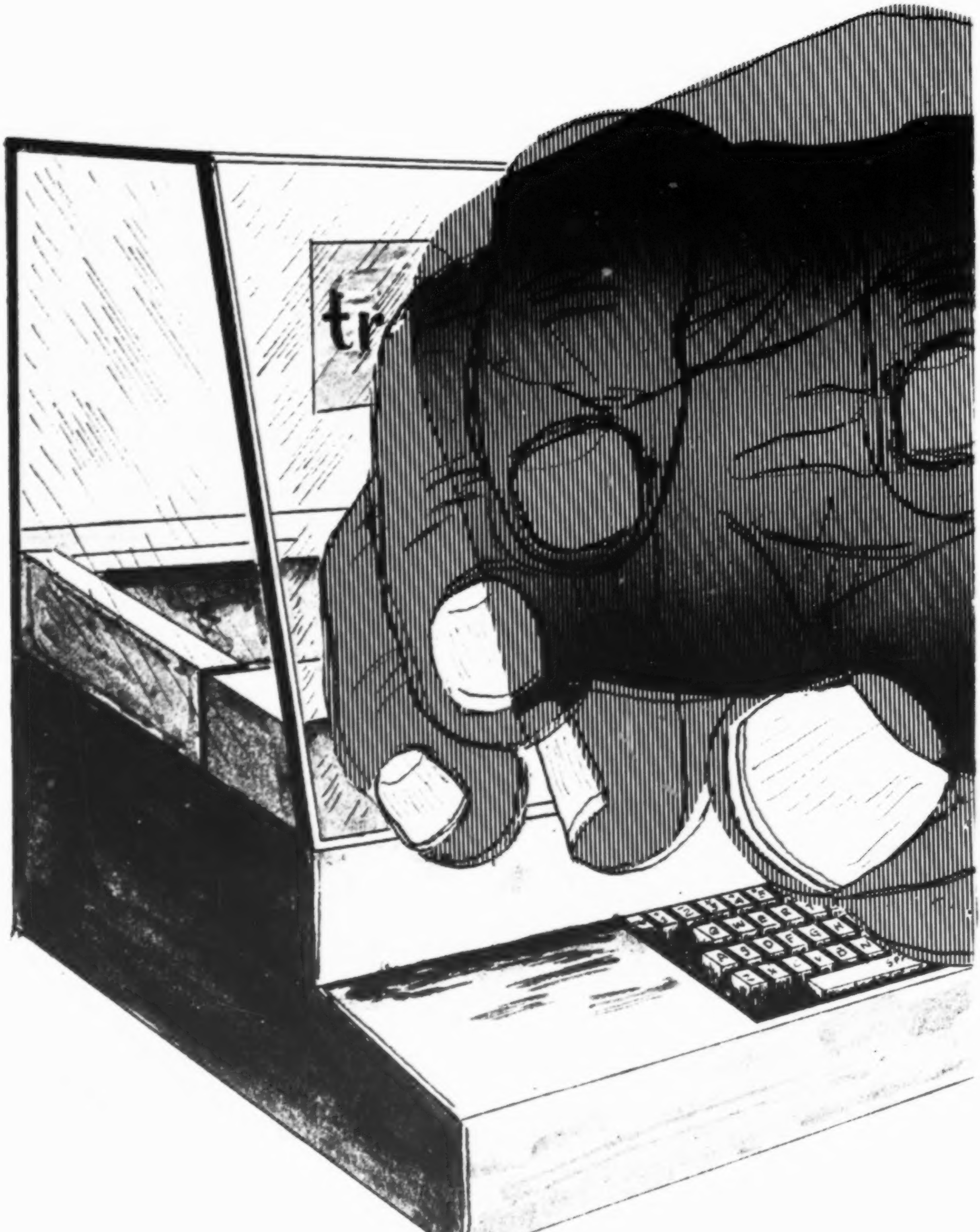


READING NEWSREPORT

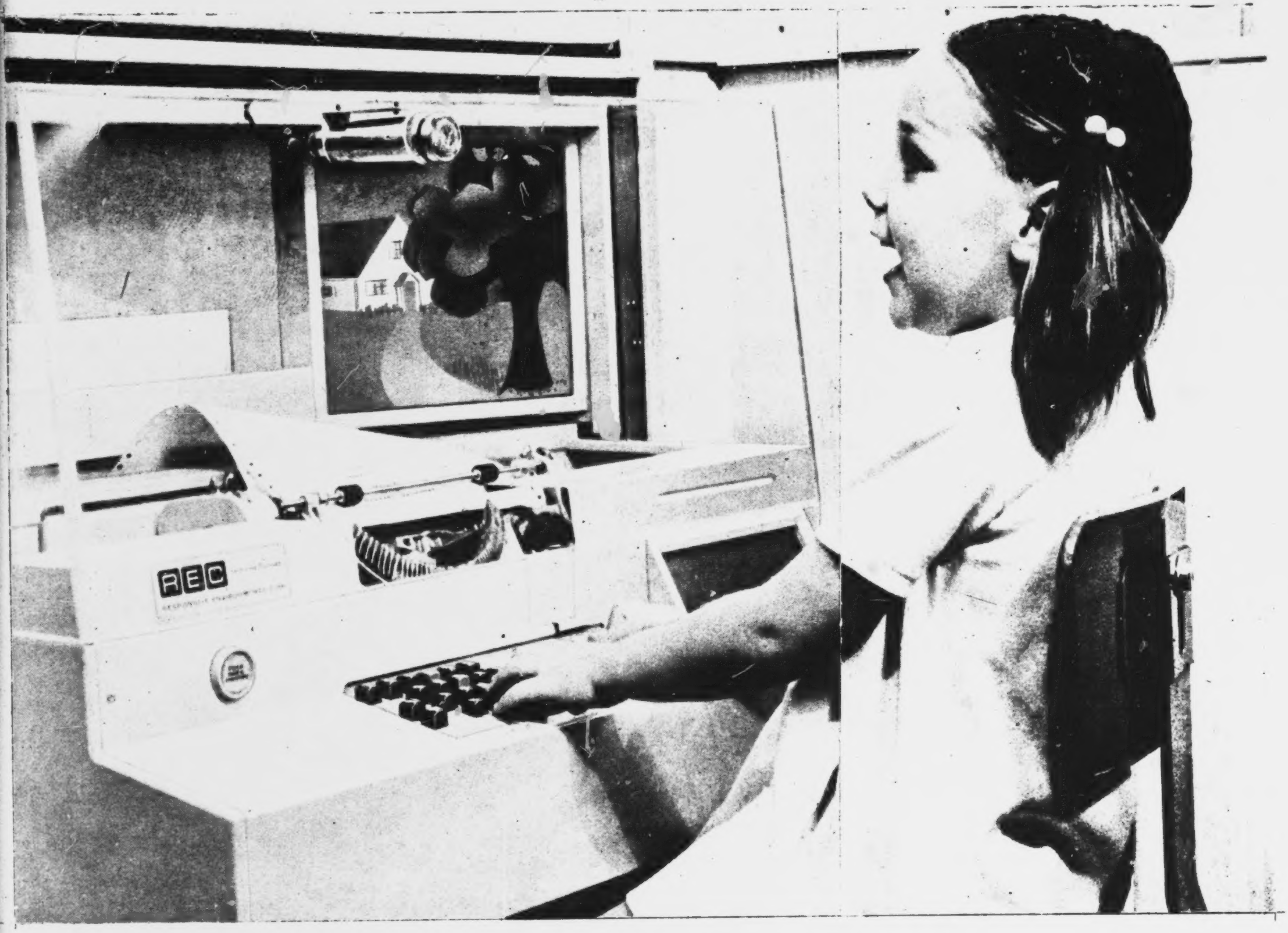
TALKING TYPEWRITERS

A follow-up report on

The Big Box That Teaches

READING NEWSREPORT

The slides which illustrate stories which the children write on the Talking Typewriter can come from many sources—including photographs of the neighborhood and drawings made by the children themselves.



THE SPOTLIGHT on the talking typewriters marketed by Responsive Environments Corporation has dimmed somewhat after its initial burst a year ago.

But the typewriters are still clicking along . . . in more places . . . with more children . . . and apparently with continuing success.

The expensive machines sell for a hefty $40,000, but can be leased at the more attainable fee of $1,000 a month by interested school systems. Basically, the machines are a refined version of the O.K. Moore Talking Typewriter first publicized in the early 1960's in Hamden, Connecticut.

The talking typewriter is an instructional system which provides the student with both audio and visual instruction through slides and tapes. The teacher programs the instruction and the child responds to the machine by typing on the typewriter keys. (See NEWSREPORT, October 1966.)

More than twenty Talking Typewriters are now in use in some twenty or more locations in projects designed to teach both children and illiterate adults to read.

On Linden Boulevard

One of the largest installations is in the New York City Public Schools.

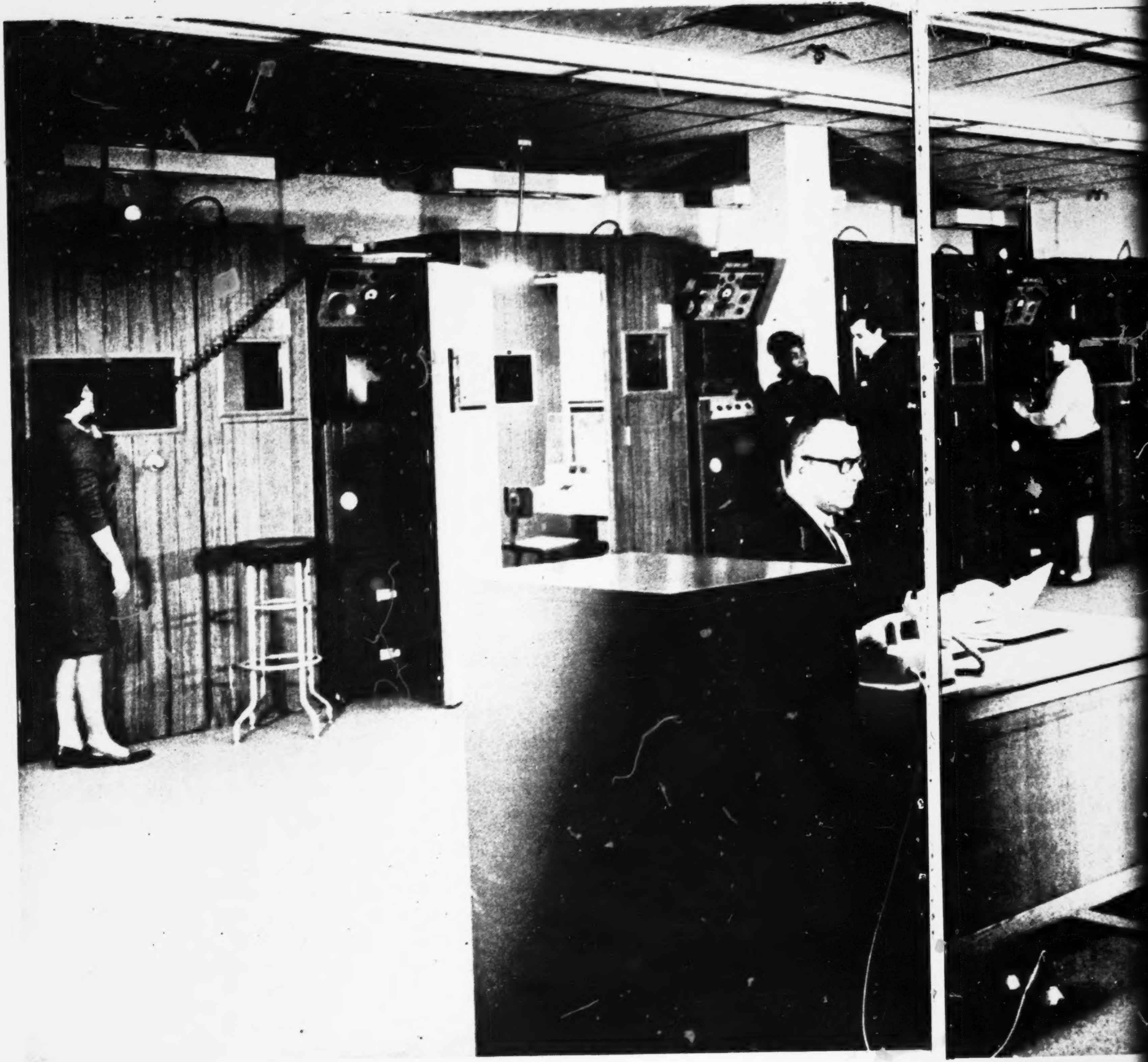
There, a large government grant supports twenty of the talking machines in a Responsive Environment Laboratory under the direction of Dr. Benjamin Israel, a former New York principal.

The Laboratory is a plush carpeted room with a central control desk in the center of twenty Talking Typewriters around the edges. Teaching monitors sit on high stools outside the futuristic-looking booths while four, five and six-year-old children bang away on their keyboards.

When the children first start with the typewriters, their fingers are painted different colors to correspond with the keys on the color-coded keyboard. The colored fingernail process tells the child which finger to put on which key.

"Type A . . ."

When the child enters the Talking Typewriter booth he is allowed to



"Human" monitors keep watch over children in each of the booths in the Talking Typewriter Laboratory in New York City. The monitors assist when children become frustrated or

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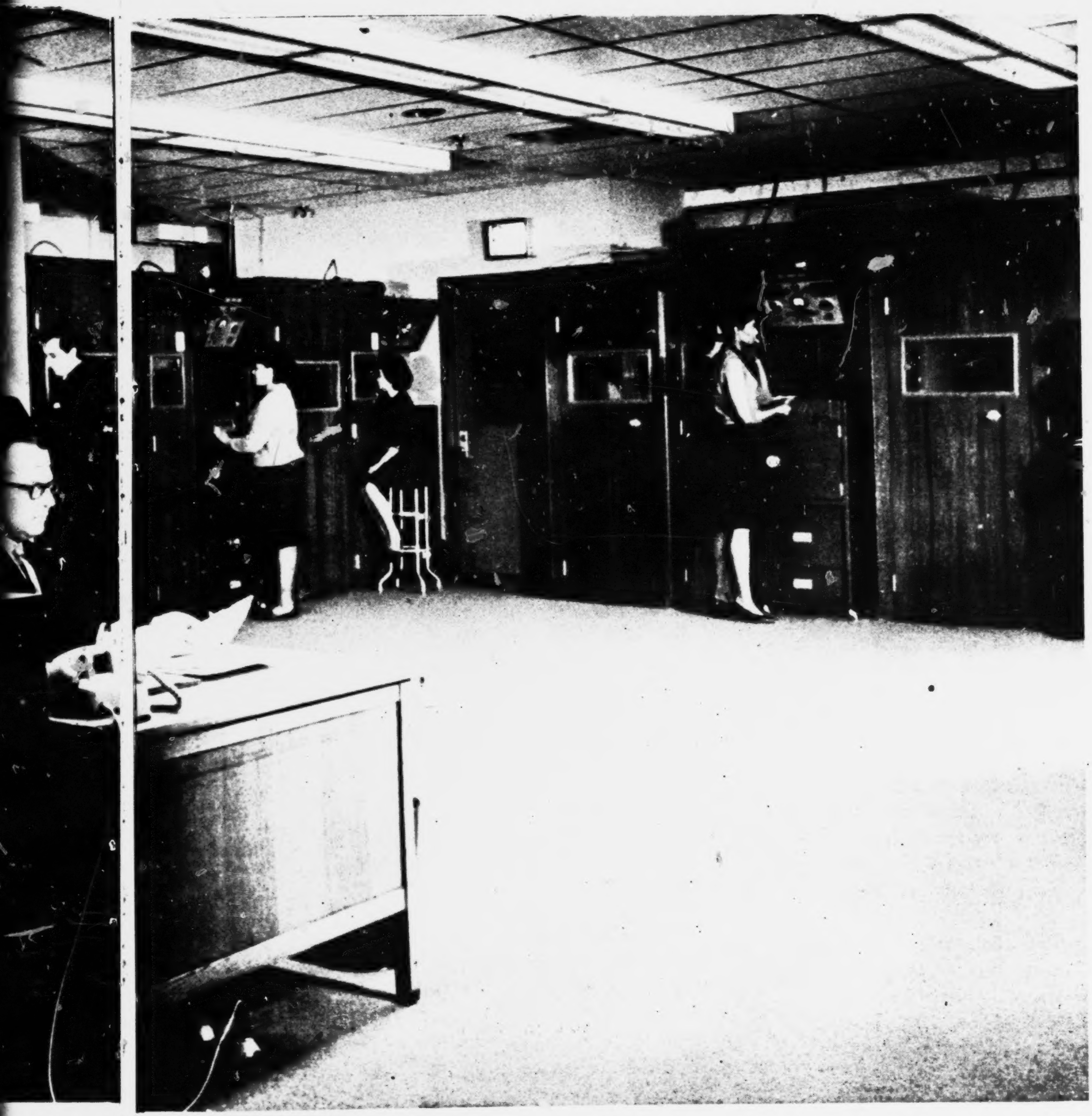

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puzzled. They also help with the programming of the lessons.

Children in the booths are isolated from other sounds in laboratory. They hear only their own interaction with the machine, and occasionally the voice of the monitor outside. They are never forced to remain in the booths against their will—usually they have to be coaxed to leave.

TALKING TYPEWRITERS

(Continued from Page 25)

play randomly with the keyboard for awhile to accustom himself to the Marvelous Machine. Then, the learning-to-read process begins in earnest.

The machine asks the child to depress certain keys, one by one, by calling the name of the letter on the key. The keyboard is locked so that only the correct key will depress. The child must explore until he finds it.

This process continues until the child is able to recognize each of the letters. At this point, he is introduced to the sounds of the letters and to the fact that letters and sounds can be used to make words.

Eventually, the machine can dictate whole stories to the child, and the youngster can bang them out on his keyboard. Sometimes, this point is reached in only a few months of instruction.

Pre-Schoolers in Philadelphia

In Philadelphia, Pennsylvania, the typewriters are clicking for forty pre-schoolers under the direction of Dr. Doreen Steg at the Drexel Institute of Technology.

Half of the pre-schoolers have been drafted from the ranks of a city project for underprivileged children called "Get-Set." The other half are tuition-paying students from more affluent areas of the city.

"The machine asks the child to depress certain keys, one by one, by calling the name of the letter . . ."

The children are divided into two groups—three-year-olds in one; four-year-olds in the other. The three-year-olds work 15 minutes a day with "The Machine," while the four-year-olds work for 20 minutes. The remainder of the time for both groups is spent in an enriched nursery school environment.

The Philadelphia project is serviced by one automated talking typewriter and by one non-automated device. The "non-automated" device consists of a primer typewriter, a tape recorder, and slides. Attempts have been made to measure the relative effectiveness of the automated and non-automated devices. According to Dr. Steg, "Seven of the children who were unsuccessful in working with the non-automated device, were quite able to succeed in the automated situation."

Several of the children in the project have learned to read at a first and second grade level.

In the Windy City

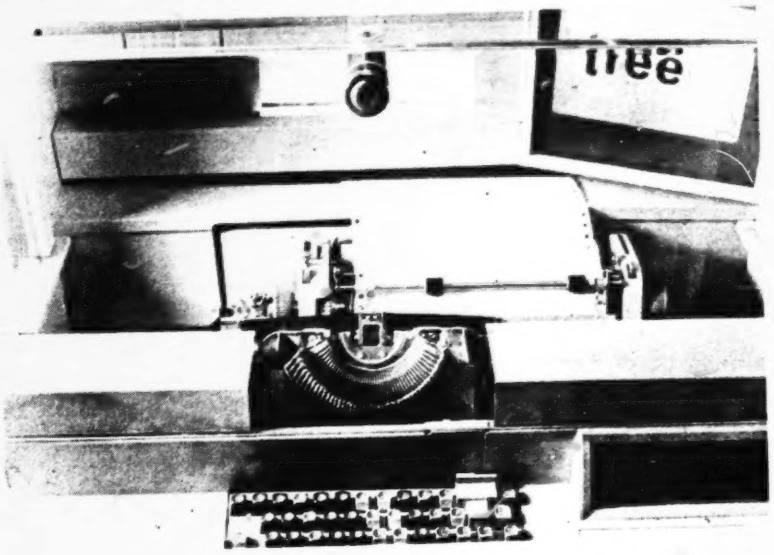
The city of Chicago is conducting its experimentation with the Talking Typewriters under the auspices of Project Breakthrough, a year-old effort operated by the Cook County Department of Public Aid with OEO funds.

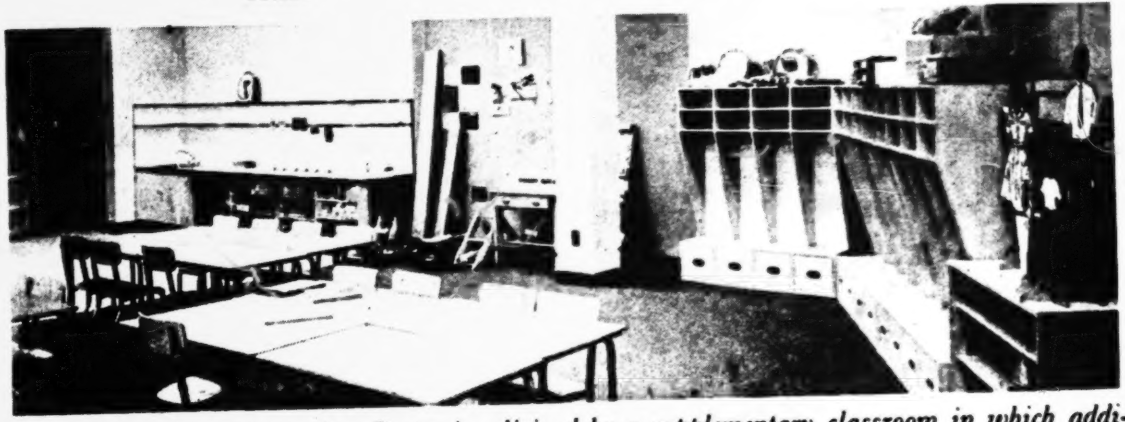
The Project's enrollees range in age from three and a half to five years of age, and all come from families receiving public assistance from the Cook County Department of Public Aid. Most of the parents are classified as "functionally illiterate"—unable to function intellectually over-all at a level above the fifth grade.

(Continued on Page 30)

Dr. Benjamin Israel, a former New York principal, is Director of the New York City Talking Typewriter project. Dr. Israel was instrumental in the implementation of the New York Center last year, and has been active in its operation. According to Israel, the typewriters no longer have a software problem. He claims that over 600 programs are now available for use. The project, he says, "promises interesting results."

The unit of the Talking Typewriter with which the student interacts looks like a large typewriter keyboard. The screen at right provides visual displays. The microphone in the center picks up the child's voice.





The New York Typewriter Center is adjoined by a supplementary classroom in which additional teaching (by human teachers) reinforces the Talking Typewriter program.

READING NEWSREPORT

A large number of programs have now been developed for the Talking Typewriters, but teachers are still able to write their own. Intricate knowledge of complex computer languages is not required.

READING NEWSREPORT

TALKING TYPEWRITERS

(Continued from Page 28)

Louis Scott, director of Project Breakthrough has reported that the children using the typewriters have "definitely overcome the pattern of learning process stagnation usually seen in the disadvantaged child." Findings in the studies show a general gain in intelligence ratings for children in the experimental group, while matched children in a "control," or non-participating group, show a general retrogression in intelligence.

Project Breakthrough's first enrollees began their training in September 1966, and all enrollees completed their training in mid-August 1967. Each spent an average of seven and one-half months in the program, about thirteen hours of which was spent on the Talking Typewriter. When not engaged in a session on the machine, the youngsters attended nursery session in which lessons were based upon the programmed instruction material used on the learning machines.

The children's performance was evaluated during and at the end of the program. After an average of twelve hours and fifty-three minutes on the Talking Typewriter, the children recognized and were able to use all upper-case letters and several lower-case letters, and knew the letter by sight and by name. According to Scott, many of the children were able to recognize sight words.

"More Motivation . . ."

The Talking Typewriter approach is also being used in Chester, Pennsylvania. Here, several different types of children are working with the machines. Some are high school students with severe remedial problems. Others are elementary students with I.Q.'s in the 80's.

"The children using the typewriters have definitely overcome the pattern of learning process stagnation usually seen in the disadvantaged child."

Project officials in Chester report gains in achievement of as much as one year in four months. They also report a change in the children's attitudes . . . "more motivation, more self-esteem."

Unlike most Talking Typewriter installations, the Typewriter in Chester was purchased out of regular school funds instead of through a special government project—which brings up a crucial point in the Talking Typewriter world.

. . . If Talking Typewriters are to make a significant dent in the improvement of the teaching of reading, then school systems must be able to afford the machines out of their regular school funds.

Many claim that as the production of Talking Typewriters goes up, the price will come down. Others look for ways to use the machines for more hours a day so that the cost per user will come down.

In the meantime, the Talking Typewriters continue to build evidence of their usefulness in teaching reading. The children seem to like them. So do the teachers. At this point, it sounds as though the Talking Typewriter world has a dawn-bright horizon. ●

The Reading Newsreport

Box 8036 Washington, D.C. 20024

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QUESTIONS AND ANSWERS

RESPONSIVE ENVIRONMENT PROGRAM CENTER

2560 Linden Boulevard **Brooklyn, New York**

DR. BERNARD E. DONOVAN
Superintendent of Schools

DR. BENJAMIN L. ISRAEL
Director, Responsive Environment Program

Questions about the Responsive Environment Program

Why was this demonstration undertaken?

One of the more serious problems of education today is the increasing number of students reaching the secondary education level unable to read or write adequately. Generally, the level of achievement in these areas is the equivalent of the 6th grade and often, below the 6th grade.

This is the first opportunity any major city school system has had to become involved in the demonstration of a process or system which has been designed to deal with these problems specifically.

Why is there so much interest in this project?

If this system and process prove successful in reducing the incidence of reading failures, the implications go far beyond the problems of the school system.

The research design of this Responsive Environment Program includes adult populations as well as the entire range from Pre-Kindergarten to teen-agers.

If successes in reducing functional illiteracy are significant, it may be possible to lay the groundwork for upgrading work skills among this adult population; materials hitherto incomprehensible to this group would become meaningful to them and enable them to take advantage of opportunities in education and employment with which they were heretofore unable to cope.

With a significant improvement in these basic skills, it may be possible to reduce the drop out rate at the secondary school level and to offset such tendencies in the earlier grades.

Is this exclusively an "Anti-Poverty Population" experimental program?

In the New York City Board of Education project, the main thrust of these efforts will be among the educationally and economically disadvantaged. Located in East New York, Brooklyn, an area bordering on the Bedford-Stuyvesant section, we have a neighborhood of intense population concentration designated as such by the Regional office of the Office of Economic Opportunity.

The broader implications of this demonstration are such that it is anticipated that they may affect the larger community significantly. Certainly the responsibility of the Board of Education of the City of New York involves the entire community, not alone hard-core pockets of poverty and disadvantage. The application of the process, system and technique will come into clearer focus as the applicability to the specific problems of education in these areas of concern becomes manifest.

Why has the Office of Economic Opportunity funded this project?

The Office of Economic Opportunity, through its program efforts (Community Action Program-Head Start—Job Corps—Upward Bound—etc.) has demonstrated its deep concern with the conditions of education in disadvantaged areas throughout the nation.

The Office of Economic Opportunity recognizes that there has been, and will continue to be, an increase in the population it is serving. Because of this the agency recognizes that extraordinary measures must be taken to relate to new systems and to technical innovations if the increasing demands being made upon the local programs are to be met.

Further, the Office of Economic Opportunity is deeply concerned with the development of methods and systems which can reduce actual program time and which can help to bring children, teen-agers, and adults to the job-ready stage of development. Hopefully, this program can help to reduce the time requirement for educational remediation activity so that more people can be served more efficiently and effectively in a given time frame.

If it is possible to achieve this kind of success with the Edison Responsive Environment Process, a substantial contribution to the over-all program efforts of the Office of Economic Opportunity can be made. With this awareness in mind, the agency has funded this major demonstration program in the largest city school system in the United States.

RESPONSIVE ENVIRONMENT

BY BENJAMIN L. ISRAEL

For over a year, a wide variety of students—ranging from kindergarteners through functionally illiterate adults—has been involved in the "Talking Typewriter" Program.

Funded by the Office of Economic Opportunity and sponsored by the Board of Education, the program is designed to evaluate both the Responsive Environment process and the use of the computer in the teaching of initial and remedial reading.

The "environment" includes an interrelated network of typewriter, projector, viewer, speaker and voice recorder. The pupil employs easily managed devices to answer questions, project illustrations, or perform problems at his own rate of progress. The machine can, if so programmed, provide individual instruction and proceed at any given rate.

The keyboard has eight colors in regular touch-type arrangement. Whenever a letter is touched in free exploration, a voice (which can be programmed for that of a man, a woman, a child, or even a friend) says: "T-red", if this was the letter chosen. After the free movements, which provide a game-like period of discovery for newcomers, the keyboard can be locked and a programmed lesson inserted.

The slightest depression of any key is accompanied by a recording's pronunciation of the symbol and its typed reproduction. By turning a switch, the attendant can cause the machine to pronounce these keyboard symbols in any one of six different languages.

In a typical experience, the following sentence might appear in the eye level window: THIS CANDY IS GOOD. A voice then announces: "TYPE THE WORD, THIS", repeating: "T-H-I-S." After the word is typed, the voice repeats "THIS . . . T-H-I-S . . . THIS." The voice can be programmed for delays ranging from four to twenty seconds, in accordance with the quickness of individual response. After a sentence or story construction, a picture can be flashed onto a small screen to the right of the machine.

With regard to "software" or programming, we have available the Bank Street reading series (Macmillan) and the Sullivan Associates Materials (Behavorial Research Laboratories). These are in addition to the many individualized programs prepared for students whose interests and requirements indicated the need for special programming.

Highly individual programming is possible. For example, a story by a child, concerning a home or neighborhood situation, can be transcribed into a sequential pattern and reinforced with Polaroid pictures of actual scenes from his home or the community.

This fitting of instruction to the student is essential to the Edison Responsive Environment process. Such aspects of the Individualized Reading Approach as interest and pace, are basic to the approaches used, whether in initial reading efforts for kindergartners or in functional reading materials for adults. We have merely adapted patterns of effective instruction that have been used by good teachers for many years. At the same time our center frees the regular classroom teacher to concentrate on the creative aspects of the teaching process rather than on the onerous aspects associated with the development of skill: repetition, drill, practice and reinforcement.

An auditory stimulus as well as a visual one, both of which promote pupil interaction in the form of tactile and auditory responses, differentiates the Edison Responsive Environment approach from that of educational television. In the latter no provision usually is made for pupil involvement or interaction. In addition, the kinesthetic involvement of the Environment—writing, tracing, rearrangement of letters, etc.—develops a learning set or internalization which, after a period of time, allows those elements of the decoding process involved in alphabet and word recognition to be mastered early in a child's school career.

To test the relative effectiveness of the "talking typewriter", classes in participating schools (P.S. 224K. P.S. 159K, I.S. 218K and Thomas Jefferson H.S.) have been matched with control classes on as many variables as possible.

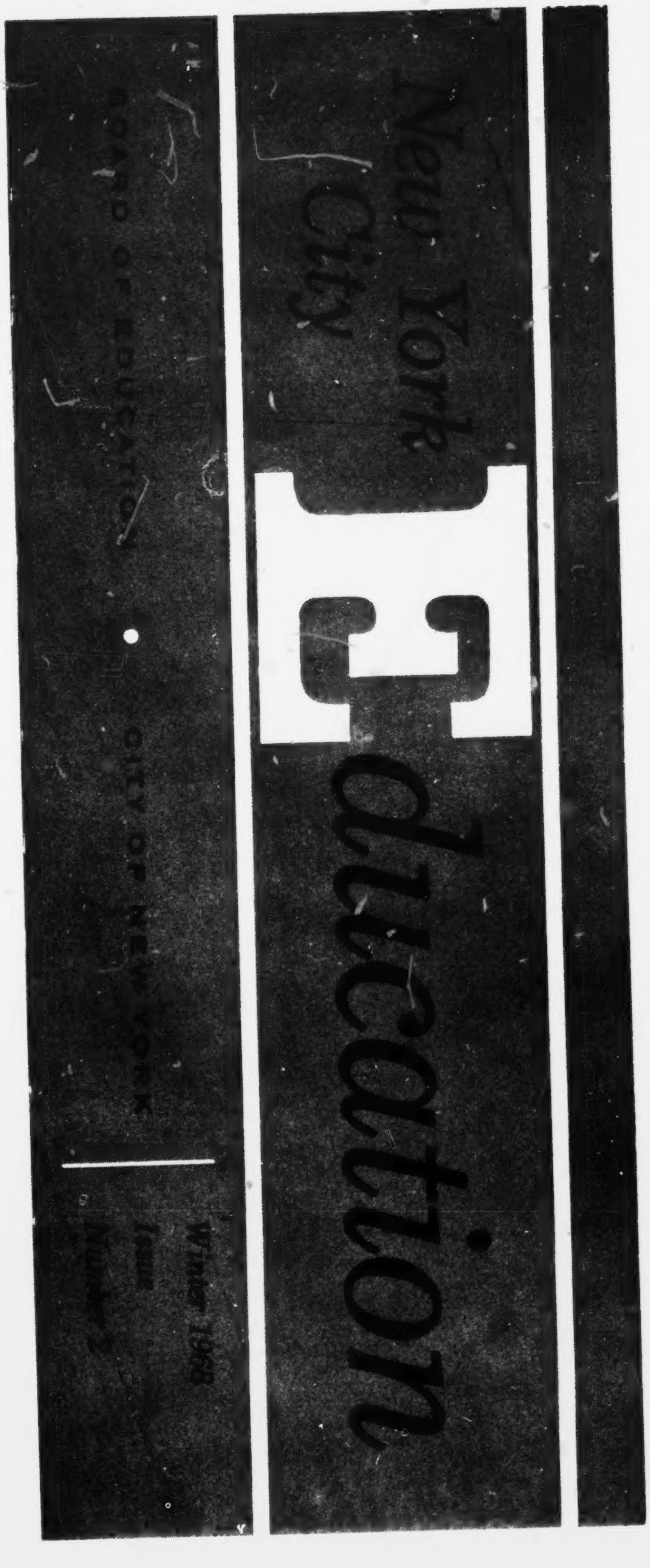
After five months of exposure to the Edison Responsive Environment system last spring (approximately one hour per day), many of the kindergartners scored as well as or higher than children in first grade control groups. Mean scores (Met primary) for experimental first grade classes were estimated to have exceeded those of control groups by 3 to 5 months. Similarly, discernible differences were apparent from data for secondary school pupils.

There are several specific "spin-offs" which we have noted which are not directly involved with the educational achievement of individual pupils, yet which are highly significant in the total educational picture. Foremost among these is the Center's use of 27 para-professionals in the laboratory and its adjacent classroom. They serve as Laboratory Booth Assistants, who work directly with the typewriters; Educational Materials Technologists, who encode and prepare programs; and Educational Technologists who work in the related or reinforcement classroom with small groups of students.

The role of the latter, under the guidance and supervision of a licensed teacher, is to follow through with specific activities—those "learnings of the day" which represent the individual child's output, as it were, from the "Talking Typewriter" experience.

Increased school attendance and a decrease in the pupil mobility figures among experimental groups attending the Center also were noted in our first months of operation. We are currently developing attitudinal studies for inclusion in this year's research efforts so that we may pinpoint developments along these lines in the school population as well as in the community at large.

Readers who desire further information or wish to visit the Center may write us at 2560 Linden Boulevard, Brooklyn, N. Y. 11208, or telephone 649-9595. ■



New York City Education

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